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Do ESG ratings affect corporate bond's yield?

Financial assets valuation

Finance and Accounting

BACHELOR'S THESIS

Reus, June 2024

FACULTAT D'ECONOMIA i EMPRESA
Universitat Rovira i Virgili

TABLE OF CONTENT

Summary and concept keys

Afecten les qualificacions ESG el rendiment dels bons corporatius?

Per al meu Treball de Final de Grau volia veure si hi ha una relació directa entre el rendiment dels bons corporatius i les qualificacions ESG (mediambiental, social i de governança en anglès). Per fer-ho, primer he investigat cada tema per separat. Com es va crear aquesta qualificació, com havia evolucionat al llarg del temps i en quins pilars es va dividir. També sobre qui va proporcionar les dades d'aquestes empreses i com es va calcular aquesta qualificació. Pel que fa a els bons, una breu explicació de què són i les seves característiques principals, que després m'ajudaria a triar quin tipus de bons volia utilitzar. També he cercat projectes anteriors i com estaven relacionats, i quines variables utilitzaven. Per a la meva part pràctica, m'he centrat en l'índex EuroStoxx 50, i he utilitzat dades de Refinitiv-LSEG, sobre les següents variables independents: qualificació ESG, qualificació creditícia, ROE (Retorn del patrimoni net) i WACC (Cost mitjà ponderat del capital). Finalment utilitzant una anàlisi de regressió lineal múltiple hem pogut comprovar que hi ha una relació entre aquestes variables i la rendibilitat del bo corporatiu, tot i que algunes variables aquesta relació era més significativa (valor R-quadrat del model de gairebé el 32%) com la qualificació ESG i la qualificació creditícia; mentre que les variables de ROE i WACC no tenia cap relació significativa.

Classificació ESG Rendiment dels bons Regressió lineal múltiple

¿Afectan las calificaciones ESG el rendimiento de los bonos corporativos?

Para mi Trabajo de Final de Grado quería ver si existe una relación directa entre el rendimiento de los bonos corporativos y las calificaciones ESG (medioambiental, social y de gobernanza en inglés). Para ello, primero he investigado cada tema por separado. Cómo se creó esta calificación, cómo ha evolucionado a lo largo del tiempo y en qué pilares se dividió. También sobre quién facilitó los datos de estas empresas y cómo se calculó esta calificación. Para los bonos, una breve explicación de qué son y sus principales características, que luego me ayudarían a elegir qué tipo de bonos quería utilizar. También busqué proyectos anteriores y cómo se relacionaban y qué variables

utilizaban. Para mi parte práctica me he centrado en el índice EuroStoxx 50, y he utilizado datos de Refinitiv-LSEG, sobre las siguientes variables independientes: rating ESG, rating crediticio, ROE (Retorno sobre el capital) y WACC (Costo de Capital Promedio Ponderado). Finalmente utilizando un análisis de regresión lineal múltiple pudimos ver que existe una relación entre estas variables y el rendimiento de los bonos corporativos, aunque en algunas variables esta relación fue más significativa (valor R cuadrado del modelo de casi 32%) como la calificación ESG y la calificación crediticia; mientras que las variables de ROE y WACC no tuvo una relación significativa.

Calificación ESG Rendimiento de los bonos Regresión lineal múltiple

Do ESG ratings affect corporate bond's yield?

For my bachelor's thesis, I wanted to see if there is a direct relationship between corporate bond yield and ESG ratings. To do this, I have first investigated each topic separately. How this rating was created, how it had evolved over time, and what pillars it was divided into. Also, about who provided the data for these companies and how this rating was calculated. For the bonds, a brief explanation of what they are and their main characteristics, which would then help me choose what type of bonds I wanted to use. I have also searched for previous projects to see how they were related and what variables they used. For my practical part, I have focused on the EuroStoxx 50 index, and I have used data from Refinitiv-LSEG, on the following independent variables: ESG rating, credit rating, ROE (Return On Equity) and WACC (Weighted Average Cost of Capital). Finally, using Multiple Linear Regression analysis, we were able to see that there is a relationship between these variables and corporate bond's yield, although for some variables, this relationship was more significant (R-squared value of the model of almost 32%) like the ESG rating and the credit rating; while the variables of ROE and WACC had no significant relation.

ESG-rating Bond Yield Multiple Linear Regression

Presentation

For this project, I based some part of it on my experience I had during my stay at the Copenhagen Business School in Denmark, which I did during the summer of 2023. During this stay, I was able to see how the creation and implementation of sustainable practices could make a company achieve better performance. And even if you don't get a better performance, the added up value given by being sustainable and responsible was a very important positive added point, which certain investors took it a lot into account.

After this experience, my main motivation was to see if really having fair environmental, social, and governance credentials (from now on, ESG rating) and doing responsible practices had an additional benefit when comparing it with a company that does not take it that much into account.

I firmly think that the ESG rating is a tool that has been created to stay and to give a common benefit to all, just as the credit rating was years ago. To have responsible and sustainable practices and, at the same time, give additional value to the companies that strive to achieve that good rating.

To relate my project to the university, I could say that although it is a fairly new topic, it can be related to certain subjects taught during my bachelors.

For example, the subject of Sustainable Finance, which although I have not been able to do it, I have been able to access all its material. I think it is a great example of a lot of information, laws, and concepts that are not usually taught in general economics. And since in these times it is important to have this good sustainable practice, not only to comply with current regulations, but to have responsibility with the planet, and with the people who work in the company, and that this result is seen with a possible improvement in performance in the company.

Additionally, the subject of Markets and Financial Assets I, thanks to which I was able to understand more about how to equitably value the thousands of raw data bonds I had and to be able to compare this data with the ESG rating.

And lastly, the subject of Financial Data Analysis. Since that subject, I have learned much more about Excel and how I can compare financial data. So as to reach a reasonable conclusion, and I consider that it helped me a lot to be able to have a solid practical part in the project.

These are the main topics with which I see a direct relationship in my work. And although there are many others, although they do not directly influence my work, I think they have helped me to have a more critical mindset, both personally and professionally, and to better understand how everything works in the financial market.

Introduction

The main objective of this work is to see if there is a relationship between ESG ratings and corporate bond's yield, although more variables are then used to see if this relationship is enhanced. To do this, reviewing the literature of previous projects, we can see that the relationship that the ESG rating has with the corporate bond's yield exists, although it is not very significant. All this focuses on a specific market or sample. I have also focused on a specific market, which is the EuroStoxx 50 index, which includes the 50 companies considered leaders in their respective sectors and the largest and most liquid stocks.

To do this in the theoretical framework, I have consulted many websites and articles, from companies such as Deloitte, MSCI, Refinitiv-LSEG... to websites such as Investopedia, Forbes, or ScienceDirect, and previous published projects.

The methodology used in the practical part is that through the Refinitiv-LSEG database, I have extracted the data and used a Multiple Linear Regression analysis to see the relationship between some independent variables and a dependent variable, which in this case is the corporate bond's yield, and how strong it was and in what direction this relationship was.

1. Theoretical framework

1.1. History and evolution of ESG ratings

The origins of ESG ratings can be found in the late 1900's, when non-economic conditions like fairer working, diversity of environment, pollution regulations… it became more important in evaluating a company's performance and sustainability. The idea of weighing social and environmental (nowadays 2/3 of the ESG rating) effects in addition to financial conditions is not new, but the final product of an ESG rating started to take shape in the 1990s and early 2000s. *(Atkins, 2022)*

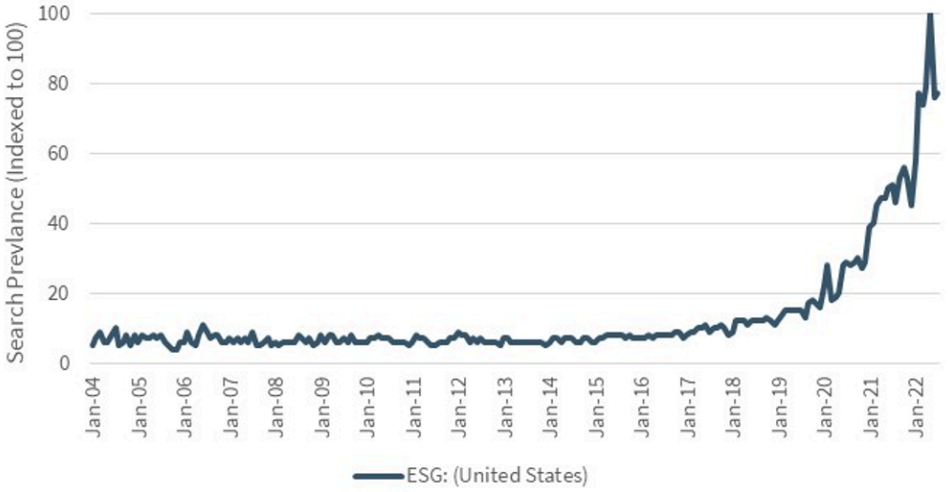
In 2004, the United Nations published a report called "Who Cares Win" about how some of the most important companies, such as HSBC (Hongkong and Shanghai Banking Corporation), Deutsche Bank, UBS (the Union Bank of Switzerland), Goldman Sachs… Wanted to make a move into a more environmental, social, and governance (ESG) future environment. This report required, for the first time, companies to incorporate ESG criteria in their annual financial reports. Until nowadays, it is called to be the first serious mention of the ESG rating. Later on, in 2006, the United Nations launched the "United Nations' Principles for Responsible Investment", a report encouraging companies and institutions to follow more ESG practices. Up until now, the United Nations' PRI has been signed by over 2.900 companies and institutions. *(United Nations b. , nd) (Liu, 2021)*

Even though the ESG rating had not had a specific creator, it was more likely to be a movement over rating agencies like MSCI (prior Morgan Stanley Capital International), FTSE Rusell (Financial Times Stock Exchange), Bloomberg, Sustainalytics…

According to Tayan in 2022, over the last decade there has been an expansion of ESG organisations and practices, along with the emergence of individual methodologies and standards for assessing a company's ESG performance. Some of the biggest companies in this field are MSCI, Sustainlytics, and Refinitiv-LSEG. These organisations evaluate companies based on various ESG factors using a variety of sources, including company disclosures, independent research, and third-party databases. *(Tayan, 2022)*

ESG ratings are increasingly being more demanded due to their use in investments, as can be seen in Figure 1. Investors view ESG performance as the culmination of long-term risk and risk regulation. For example, under the MIFID (Markets in Financial Instruments Directive) in Europe, asset managers, institutional investors, and even individual investors are incorporating ESG concerns into their investment strategies..

Figure 1. Google searches of ESG between 2004 and 2022



Source: Tayan (2022)

This demand for information is segmented between different profiles of information use:

- **Asset owners:** Widely known as particular investors, are the ones who seek out companies that do not cause harm to society or the planet and make their investments according to their personal values. Those particular investors might be the ones who seek a more green investment, like betting on renewable energies, electric cars… *(Tayan, 2022)*.

- **Institutional investors:** They are investors who try to collect information to be able to make the best portfolio that best suits the needs of their clients. They seek to reduce the risk of companies both in the long and short term in order to have greater future benefits. Related companies in this sector would be BlackRock, Vanguard, StateStreet… *(Tayan, 2022)*.

- **Companies:** Companies are the main suppliers of ESG information to clients, investors, or suppliers, thanks to the reports they produce. This information is

used by third parties or companies, both to see how the company acts (in ESG terms), and for investors looking for a fairer investment with their values. Also for the same company that issues the information, to be able to present its good ESG values and to be able to compare itself among its competitors. *(Tayan, 2022)*.

- **Regulators:** Regulators are the ones who give the most value to ESG information, thinking that it could affect companies' finances. They are observing how companies manage human resources and the environment, in addition to verifying that companies comply with regulations, and that they really have the value and rating that they consider. *(Tayan, 2022)*.

Alongside, some other agreements have been established since the creation of the term ESG, thanks to the United Nations, like the Paris Agreements in 2015 and various COP's (Conference of Parties)... which establish maximum pollution levels that companies cannot exceed. (United Nations a. , nd) Later on, in 2018 the Non-Financial Reporting Directive of the United Nations implemented that companies disclose information about their ESG policies and performance so that investors can seek out their best performance and preferences. *(European Parliament, 2021)*

In the future, ESG ratings are expected to continue to develop as companies are challenged every time about their commitment to ethical and sustainable business practices. ESG factors are also expected to become more crucial in business decision-making, and investment analysis in the face of growing investor counts and regulatory pressure, co-shaping the future of sustainability and finance. As Atkins says, "This is a journey. The frameworks and answers are still evolving. Although the final global ESG measurement systems are not complete, that is not a reason to wait any longer." *(Atkins, 2022)*

1.2. Definition of ESG ratings

"An ESG rating measures a company's exposure to long-term environmental, social, and governance risks. These risks - involving issues such as energy efficiency, worker safety, and board independence - have financial implications. But they are often not highlighted during traditional financial reviews. Investors who use ESG ratings to

supplement financial analysis can gain a broader view of a company's long-term potential." *(Plaut, 2023)*

An ESG rating tells if a company is managing Environmental, Social and Governance risks better or not than its peers (peers of the same industry). *(Refinitiv-LSEG, 2023)*

ESG investing is the practice of taking into account the environmental, social and governance practices of the companies invested during the decision-making process. This type of rating is not usually reviewed by traditional financial analysts, however it's an addition when it comes to seeing whether a company will have a good future performance or not. *(MSCI a. , nd)*

As Huber and Comstock in 2017 reports "often form the basis of informal and shareholder proposal-related investor engagement with companies on ESG matters." (Huber and Comstock, 2017) Like the other financial ratings, ESG would not make sense if the market did not believe in or take this value into consideration. In Europe, thanks to new regulations like MiFID II, ESG ratings are beginning to take more prominence in the financial sector. Investors and companies incentivized by regulations and financial aid are starting to take it more seriously. *(Comisión Nacional del Mercado de Valores, n.d.)*

1.3. Components of ESG ratings

Investors and other stakeholders can better understand a company's risk and opportunity for investment by evaluating environmental, social, and governance issues, all together or separately. This helps them make more informed investment decisions and match their goals and preferences with the companies they invest in, divided into the categories they give more importance to. To give a comprehensive picture of a company's influence in these areas, which assess a company's or entity's ESG performance, they are usually broken down into many subsections, which will later be seen from Refinitiv-LSEG's perspective. *(Krychiw, 2023) (MSCI b. , nd)*

1.3.1. Environmental

The Environmental pillar measures how the company approaches sustainable challenges, such as gas emissions, carbon footprint… Trying to minimise its environmental impact, making companies have a greater social responsibility while obeying environmental laws and regulations. *(Krychiw, 2023) (MSCI c. , nd)*

This pillar include amongst others:

- Carbon emissions
- Climate change
- Natural resources
- Toxic emissions and waste production
- Environmental opportunities

1.3.2. Social

The Social pillar assesses how a business handles problems pertaining to its stakeholders, including communities, consumers, workers, and other parties. In addition to contributions to local communities and social development, this also includes fair and safe employment policies and practices, diversity and inclusion, occupational health and safety, human rights, labour relations… *(Krychiw, 2023) (MSCI c. , nd)*

This pillar includes amongst other:

- Labour management
- Human capital (workers)
- Product stability
- Supply chain standards
- Consumer financial protection

1.3.3. Governance

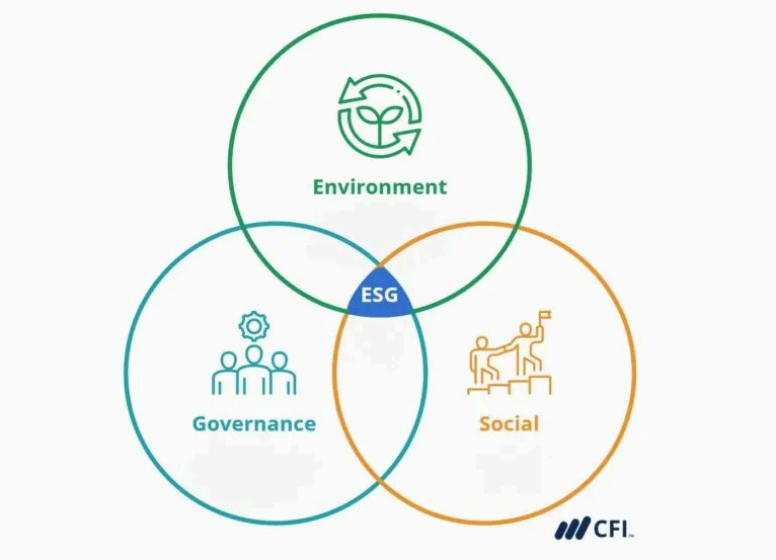
In the Governance pillar, the company's methods and structure are examined. This might include the makeup and independence of the board, executive pay, financial disclosure and openness, risk management procedures, conflict of interest control, and anti-corruption measures. Evaluating governance aspects in addition to social and environmental variables offers a holistic picture of a business's overall sustainability performance. *(Krychiw, 2023) (MSCI c. , nd)*

This pillar includes amongst others:

- Composition and diversity of the board
- Corporate governance
- Ethical business practices
- Tax transparency

As in Figure 2, where although the three pillars are individually part of the ESG rating, the combination of all data creates an ESG score.

Figure 2. ESG category rating map



Source: Peterdy (2023)

1.4. Market players

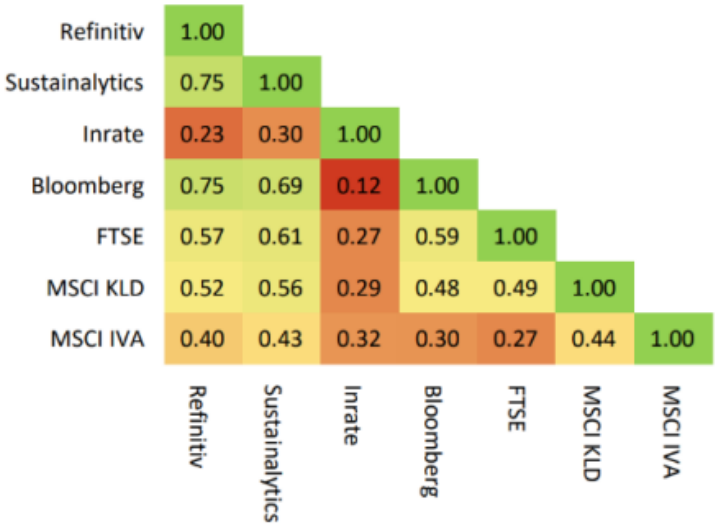
1.4.1. Market valuation

ESG ratings have different providers, most of them from other companies that already do ratings and valuations of assets, and others that do data and financial information. We can find many companies that provide this information, but only a few have reliable information or information that can be compared with other companies.

The ESG rating system is not unified, not all providers use the same methodology nor the same final rating. Some do use numerical scores, some use letter grade scores, and some use both. As well, not all companies use the same methodology to value

companies or bonds. *(Tayan, 2022)*. In Figure 3 we can see the correlation of ESG data among some of the most important providers.

Figure 3. ESG-data correlation of different providers



Source: Deloitte (2023)

Even so, these are the main companies that issue this information and how each of them rates them, as well as a comparative table of the correlation of results. *(Huber and Comstock, 2017)*

Bloomberg ESG Data Service:

Started off in 2009 when Bloomberg acquired New Energy Finance, launching "Bloomberg ESG Data Service." It offers ratings to over 15.000 companies from over 100 countries, and their market coverage includes companies from $2 billion (small capitalization) to $10 billion (large capitalization) and over. *(Huber and Comstock, 2017) (Bloomberg, nd)*

Rating scale: 0 - 100 (though it also provides scores from other companies like RobecoSam, Sustainalytics, ISS Quality Score…).

MSCI IVA ESG Research:

Was originally created in 2007 as a subsidiary of Morgan Stanley Capital Investment (MSCI). In 2010, spun off one of the largest independent firms to provide ESG ratings as MSCI Intangible Value Assessment ESG Research. Partnered with State Street in 2014 and BlackRock in 2016 to introduce a

variety of sustainable ETF's (Exchange-Traded Fund) like iShares MSCI EAFE (Europe, Australia, Asia, and the Far East ESG) ESG, MSCI EM (Emerging Markets ESG) ESG, so as to cover most of the market. Being part of the MSCI Group, it provides ratings to over 8.500 companies (14.000 issuers) and 400.000 equity and fixed income securities; from companies with less than $2 billion in market capitalization to $10 billion and above. *(Huber and Comstock, 2017) (Tayan, 2022)*

Rating scale: 7-point scale AAA - CCC.

Sustainalytics Company ESG Reports:

Introduced in 2008 by the consolidation of DSR (Dutch Sustainability Research in the Netherlands), Scoris (Germany), AIS (Analistas Internacionales en Sostenibilidad in Spain) as the European counterpart, and Jantzi Research (Canada). In 2016 Morningstar purchased 40% of the company, and in 2020, the remaining 60%, being the only shareholder of the company. Morningstar's primary business is the rating of mutual funds and exchange-traded funds. It covers over 13.000 companies, ranging in size from $2 billion to $10 billion and over. *(Huber and Comstock, 2017) (Tayan, 2022) (Wavaren, 2017)*

Rating scale: 0 - 100.

ISS ESG:

Even though it is not mentioned in Figure 3, it is the world's leading provider of environmental, social, and governance solutions for asset owners and asset managers, so I found it interesting to mention it here. Part of the company ISS (Institutional Shareholder Services), owned by Deutsche Boerse AG (since 2020), provides ratings to over 11.800 issuers and 25.000 funds. ISS has historically provided governance ratings to companies so that they can improve in their terms. *(Huber and Comstock, 2017)*

Rating scale: 12-point scale from A+ to D-.

LSEG ESG Scores (Refinitiv-LSEG):

Started back in 2002 and now offers one of the most comprehensive ESG databases on the market, covering over 90% of the market (over 15.500 companies), with more than 630 ESG metrics to calculate a more accurate rating. Refinitiv is the rebranded data provider of Thomson Reuters, and in 2021

it was purchased by LSEG *(London Stock Exchange Group). (Refinitiv-LSEG, 2023)*

Rating scale: Both numerical and letter grades (A+ or 100.000 being the best, and D- or 0.000 the worst).

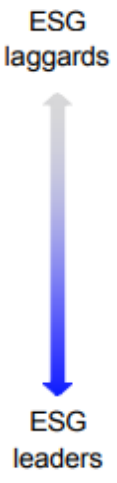
1.4.2. Valuation methodology according to Refinitiv-LSEG

As we previously saw, Refinitiv (a subsidiary of LSEG) covers over 90% of the global market capitalization; hence, it will be the one I will use to make the practical part, as well as the one my university has access to. Based on company-reported data, LSEG's ESG ratings are intended to clearly and fairly assess a company's relative ESG performance, commitment, and effectiveness. According to Refinitiv-LSEG, and as later seen in Figure 4, companies are categorised as leaders (from A+ to A-), average performers (from B+ to C-) or laggards (from D+ to D-) with the following score:

- **D ratings (0.000 - 0.2500)** show a lack of transparency in reporting the information and indicate a poor ESG performance.
- **C ratings (0.2500 - 0.5000)** indicate an average ESG performance, and a modest ESG information report.
- **B ratings (0.5000 - 0.7500)** shows a good ESG performance while reporting enough good information for its own valuation.
- **A ratings (0.7500 - 1.0000)** is an indicator for an excellent ESG performance with high information reporting.

Figure 4. ESG Rating and score equivalences

ESG RATING	NUMERICAL RATING
D -	0.000 - 0.0833
D	0.0833 - 0.1666
D +	0.1666 - 0.2500
C -	0.2500 - 0.3333
C	0.3333 - 0.4166
C +	0.4166 - 0.5000
B -	0.5000 - 0.5833
B	0.5833 - 0.6666
B +	0.6666 - 0.7500
A -	0.7500 - 0.8333
A	0.8333 - 0.9166
A +	0.9166 - 1.0000

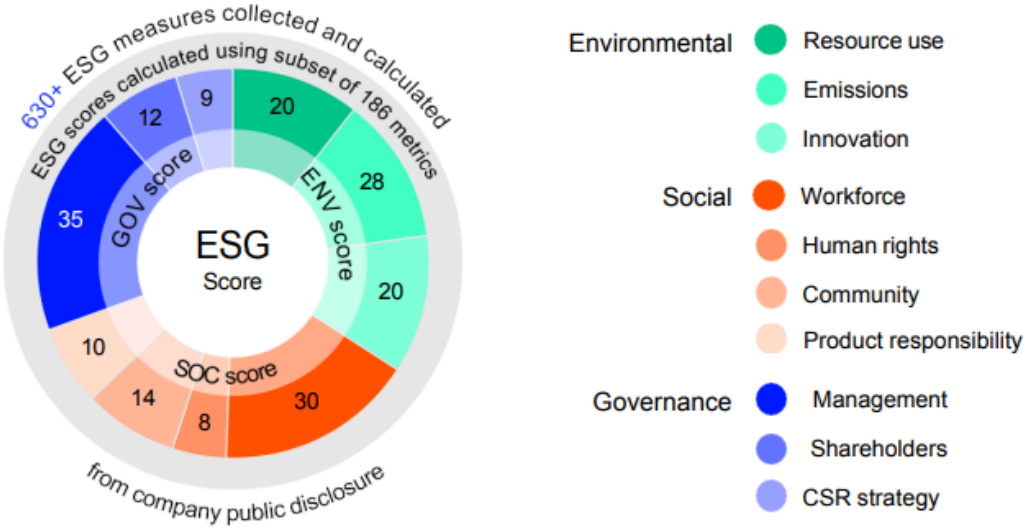


Source: Own creation with Refinitiv-LSEG data

There are 10 main themes that englobe the ESG pillars to calculate the final score, which can be easily seen by different colours in Figure 5:

- **Environmental:** Resource use, Emissions and Innovation.
- **Social:** Workforce, Human rights, Community and Product responsibility.
- **Governance:** Management, Shareholders and CSR strategy.

Figure 5. Refinitiv-LSEG ESG category disclosure



Source: Refinitiv-LSEG (2023)

As we can later see in Table 1, Refinitiv-LSEG divides the 3 major pillars into 10 categories, and these 10 categories into 25 different subcategories.

The score for the rating is calculated by the 10 category scores with the formula (1), and the ESG controversies (ESGC) it's based on 3 factors:

- How many companies are worse than the current company?
- How many companies have the same value?
- How many companies have a value?

$$\text{score} = \frac{\text{no of companies with worse value} + \text{no of companies with the same value included in the current one}}{\text{no of companies with a value}} \quad (1)$$

Table 1. Detailed themes covered by each category

PILLARS	CATEGORIES	THEMES
ENVIRONMENTAL	Emissions	Emissions
		Waste
		Biodiversity
		Environmental management systems
	Innovation	Product innovation
		Green revenues, R&D, CapEx
	Resource use	Water
		Energy
		Sustainable packaging
		Environmental supply chain
SOCIAL	Community	Equally important to all industry groups
	Human rights	Human rights
	Product responsibility	Responsible marketing
		Product quality
		Data privacy
	Workforce	Diversity and inclusion
		Career development and training
		Working conditions
		Health and safety
GOVERNANCE	CSR strategy	CSR strategy
		ESG reporting and transparency
	Management	Structure
		Compensation
	Shareholders	Shareholder rights
		Takeover defenses

Source: Own creation with Refinitiv-LSEG data (2023)

1.5. Corporate bonds

1.5.1. Corporate bond introduction

Corporate bonds are debt issued by companies to raise capital to invest in a project, R&D (Research and Development), M&A (Mergers and Acquisitions)… A bond is structured into a future promise to give back the money at a specified interest rate and a specified date. The issuer pays the investor interest on a regular basis until the bond matures. The bond's face value is then reclaimed by the investor. The interest rate on the bonds might be set, or it could fluctuate based on changes in a certain economic indicator. *(Chen, 2024)* The typical buyer of corporate bonds is a type of risk-averse investor, since the associated risk compared to a stock is lower, making it more common to offset an equity portfolio. *(Harper, 2022)*

Some of the most important key features for a better understanding of bonds are the following: *(Fontinelle, 2023)*

- **Issuer:** The issuer of a bond is the company that issues (the product) the bond so as to raise money.

- **Maturity:** Maturity means at what future time will the issuer (the company) pay back the money of the investor. Normally, it has a positive relationship with yield, as seen in Figure 6. As higher maturity leads to a higher bond's yield.

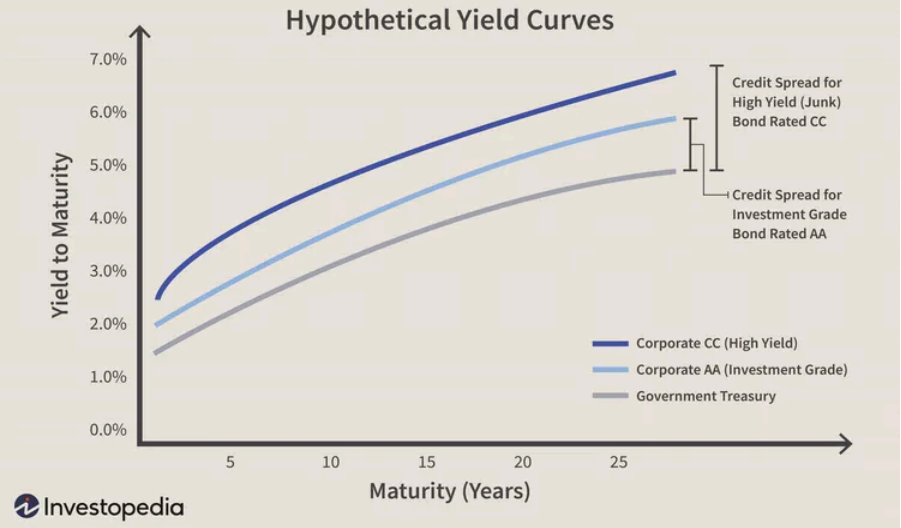
- **Coupon rate:** Corporate bonds typically have a fixed coupon rate (interest rate), though it can also be a variable rate of the amount paid by the investor for an increase in its investment (the coupon can be normally paid annually or semi-annually).

- **Yield:** The yield of a bond is the annualised ROI (Return On Investment) expressed in percentage. It takes into account the coupon, the change in price of the bond, and its time until maturity.

- **Credit quality:** The quality of the bond is the ability of the company to pay back its debt obligations (to investors). Credit quality is normally rated by Moody's, Standard & Poor's, or Fitch (rating companies). Credit quality has normally an inverse relation with yield; a high-rated credit quality (less risk) has lower interest rates (lower yield), and vice versa.

- **Liquidity:** Liquidity means how easily it is to sell a bond in the secondary market without affecting its price much.

Figure 6. Yield to maturity bonds graph



Source: Harper (2022)

Even though fixed-coupon-rate bonds are the most typical, there are also more types of retribution through bonds. *(Hall, 2024)*

- **Floating-rate bonds:** Bonds that have a variable interest rate, mostly linked to some benchmarks

- **Zero-coupon bonds:** Those ones which do not need payments of interest; you pay less than the total that will be repaid in the future, and get the entire value back when the deal finishes (maturity date)..

- **Convertible bonds:** The rarest types of bonds give the company the chance to pay the investors with company stocks instead of cash at maturity date.

1.5.2. ESG - Bonds literature

The purpose of this project is to find whether there is a correlation between the ESG rating and the performance of corporate bonds or not. As this is a fairly new topic, there is still not much scientific literature yet. Though we can see that there is more literature among ESG ratings and other bond topics like dividends and WACC (Weighted Average Cost of Capital)...

We can find jobs or articles from specific countries or industries, but concepts cannot yet be generalised due to the fact that they are not yet widely incorporated by some companies or because they are not given the value that they should really have. We also have to take into account whether the companies observed are in the same sector or the same country... Perhaps one country has more regulations than another, or perhaps companies are more aware of this rating.

According to MSCI c. (nd) "High ESG-rated companies were more competitive and generated abnormal returns, often leading to higher profitability and dividend payments, especially when compared to low ESG-rated companies." As seen in Figure 7, which was later corroborated by Lasse H. Pedersen (CBS Research Department), et al.

Figure 7. Correlation between dividends and ESG rating

Source: Johnsen (2020) - Pedersen et al (2021)

Pedersen explained that there is an increasing demand for more ESG portfolio assets, since these investors are looking for more CSR (Corporate Social Responsibility) and ESG practices. Also explained the ESG-efficient frontier to evaluate the benefits of investing in high-rated ESG firms or not. Though one of the most important statements that is mentioned is that investing in high ESG firms may not have high returns. That's why we can say that social, ethical, and global ESG goals can be achieved at a lower cost of investment. (Pedersen et al, 2021) Even though Pedersen et al. article was not published until 2021, it became public on October 7th, 2019. That's why Johnsen in 2020 could publicly argue with some of Pedersen's statements. Johnsen wrote, "Firms with strong ESG profiles are more competitive because they use resources more efficiently, are better at developing human capital and managing innovation, better long term planning and have better incentives for senior management. This leads to the ability to generate excess returns, higher profitability, and ultimately higher dividends." thus affirming the publications that Pedersen had already made. Also confirming that a good ESG rating meant companies had lower tail risk as they had better risk

management and compliance standards. Therefore, it is more difficult for an ESG company with a high rating to commit fraud, corruption, bankruptcy… *(Johnsen, 2020)*

We can also see projects to examine the correlation of companies from the same country, as in this case it could be from the Swedish market. According to Khosravi and Wadman (2022), the more sustainable companies in Sweden have a lower WACC, COE (Cost of Equity), and COD (Cost of Debt). After analysing 157 companies in Sweden between 2015 and 2020, using also Refinitiv-LSEG Eikon and 468 observations. It concludes by saying that there is a significant negative relation between ESG scores and WACC and COD (though not a significant relation with COE). *(Khosravi and Wadman, 2022)*

Moreover, following the previous project, another example of the relationship with the cost of capital, would be the project of Yeh et al from 2020. In this project, we can see how CSR (Corporate Social Responsibility) affects the cost of equity and debt in China's market. The conclusion of the project says that due to China's companies having big debts, the Cost of Equity has little influence, but the Cost of Debt does. The lower the CSR (similar to the ESG rating), the lower the cost of debt. *(Yeh et al, 2020)*

Another important project is the one published by Gehricke et al in 2023 as a more developed / continuous project of Pedersen et al (2020). The project is about whether incorporating more ESG factors leads to underperformance or outperformance in a corporate bond portfolio. The conclusion of the project is that "incorporating ESG scores in bond portfolios does not lead to underperformance or overperformance.". However, in the energy sector, and from the period following the Paris Agreement (2015), investors that are more aware of ESG risks and opportunities strengthen the relationship with ESG returns. *(Gehricke at el, 2023)*

On the other hand, in an article posted by Swanson and Chen in 2023, they did try to explain if a better ESG score correlates to a better financial performance or valuation of the company. It starts by making the hypothesis that "the bond market views companies with better ESG ratings as better credit risks, and as such, these firms' corporate bonds should have lower risk-adjusted yields". Data (from 2023) is taken from 10 issuers of the 11 industries defined in the S&P 500 and deducted from the corresponding maturity U.S. Treasury yield from the current corporate bond yield to arrive at their risk-adjusted returns (credit spreads). Though they did not find a

significant correlation, they indeed found that a higher ESG rating actually correlates with a higher credit spread (higher bond yield, after subtracting U.S. Treasury yield). Although the correlation is negative, it is not significant due to the R-squared being 0,0146.

The conclusion Brad Swanson and Zihan Chen arrived at is that bond investors might feel that ESG scores do not add up much to their credit risk assessments and that there is not a significant correlation between ESG scores and the credit spread of companies in different industries in the S&P 500 index. *(Swanson and Chen, 2023)*

2. Practical application

After analysing the theory, what is the ESG rating, in what parts it is divided, who calculates it, or how… also understanding well how a bond works and its main characteristics, we can see how to apply such concepts together. We have also seen the different articles and papers that have already been done about the ESG rating and how we have tried to see the relationship with performance variables such as the WACC of a company. And although the results have not been very promising or given us clear results, we have been able to see that it is still taken into account and that it can begin to be given more importance than what is being given.

As we can see, the purpose of this work is to progress on previous projects and determine whether we can find a direct relationship between the ESG rating and the performance of corporate bonds. To do so, we may also have to incorporate other variables to see if this relationship is enhanced or not and if it has a significant value or not. For the practical part, I will use the data provided by Refinitiv-LSEG since it is the one that my university has access to and the one where we find the most data divided by categories (bonds, stocks, ratios…); which will be easier when filtering the data so as to use the one I do find most appropriate. To do so, I will focus on the EU market, more specifically on the EuroStoxx 50 index.

2.1. Methodology

The methodology used for the practical part is a multiple linear regression (MLS) analysis. I have used this methodology since it was a model that allowed me to compare annual data, such as the ESG rating or the credit rating of each of the bonds

(different variables), all at once. This type of analysis can tell whether there is a linear regression between an independent variable and different dependent variables. This model can be said to be an extension of ordinary least squares (OLS) analysis since it takes into account more than one independent variable, while OLS analysis just takes 2 variables into account. *(Hayes, 2023)*

MLR analysis do follow some assumptions:

- There is a linear relationship between dependent variables and the independent variables.
- The independent variables are not highly correlated with each other.
- y_i observations are selected independently and randomly from a population.
- Residuals should be normally distributed with a mean of 0.
- Residuals should have a constant variance at every point in the linear model.

MLR's formula is the following:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_p x_{ip} + \epsilon$$

y_i = dependent variable
β_0 = y-intercept (constant term)
x_{ip} = explanatory or independent variable p
β_p = slope coefficient for the independent variable p
ϵ = model's error term (residuals)

To interpret the result of the analysis and be able to say that our model is good, we have to look at the value of the coefficient of determination, or, by now, the R-squared value. This coefficient explains the variation of the dependent variable caused by the independent variable. The value of R-squared always increases as more independent variables are added, regardless of whether these variables are actually related to the dependent variable or not. Its value ranges from 0 to 1, where 0 means the independent variable does not predict changes in the dependent variable, and 1 means the independent variable perfectly explains changes in the dependent variable.

To combat the problem of adding many independent variables, even if they are not correlated with the dependent variable, we have the adjusted R-squared value. This value takes into account the number of independent variables that we add to the

model, so as not to abuse adding lots of them. Further looking at the value of the R-squared and adjusted R-squared, we can look at the value of the beta coefficients. These coefficients give us the level at which the dependent variable changes with the independent variable if all other independent variables are kept constant (all else equal).

In this case, the dependent variable is the bond yield, and the independent variables are the ESG rating, the credit rating of the bond, the ROE (Return on Equity) of the issuer of the bond, and the WACC. I did choose credit rating, ROE and WACC as my other dependent variables since I believe they are the ones that do influence the most in a firm's valuation of a bond. Following some previous projects like Khosravi and Wadman (2022) for the WACC variable, and although ROE was not previously put, it is a great comparison ratio for peers of the same industry. The credit rating of a security (in this case, a bond) is the ability of the company to repay the debt issued. (Kagan, 2024) ROE is the division of net income by shareholder's equity and tells you about a company's profitability, how well it is doing, and how efficiently it generates it. It is also very useful to compare companies in the same industry. (Fernando, 2024) Lastly, WACC represents, after tax, the cost of capital of a company, including common stocks, preferred stocks, bonds, and other forms of debt. It's the average rate at which a company finances its projects. A high WACC indicates higher risk associated with the company's financial structure; hence, higher risk leads to higher expected returns. *(Hargrave, 2024)*

So this would be the formula for the MLR analysis:

$$BY_i = \beta_0 + \beta_1 ESG_i + \beta_2 CR_i + \beta_3 ROE_i + \beta_4 WACC_i + \epsilon$$

BY_i = Bond Yield (dependent variable)
β_0 = y-intercept (constant term)
$\beta_1, \beta_2, \beta_3, \beta_4$ = beta coefficients for each independent variables
ESG_i = ESG score (independent variable)
CR_i = Bond's Credit Rating (independent variable)
ROE_i = Issuer's ROE (independent variable)
$WACC_i$ = Issuer's WACC (independent variable)
ϵ = model's error term (residuals)

2.2. Data Collection

For the data collection, I used several of Refinitiv's tools, like LSEG Datascope or Eikon, to be able to filter and choose the data that I found most convenient. I obtained all the bond data on May 1, 2024, from bond's rate, or the credit rating to the index constituents; and all the raw data can be easily seen in the Annex.

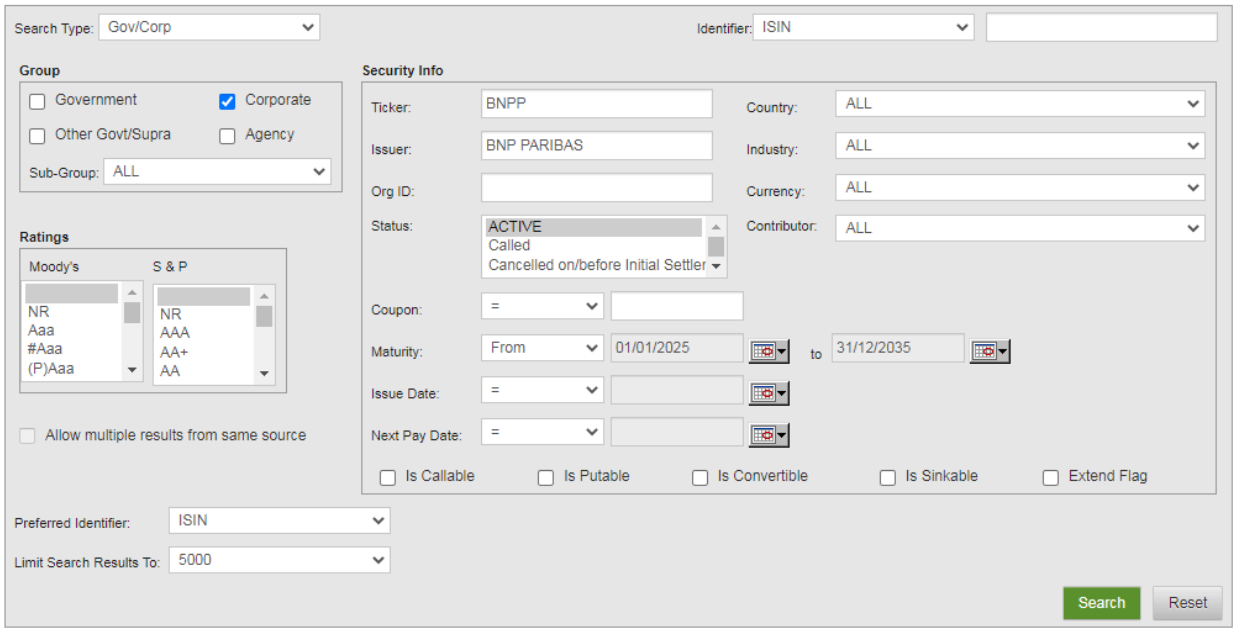
First, I chose which sample I had to observe. To do this, I first tried to make it with different indices from around the world, but there were a few, like those in China, that I couldn't get much data from. Then I tried to make a comparison between Europe and America, but I thought it would be better to focus on a single continent, and I chose Europe since many of the companies have more internalised the ESG concept and its policies; and wanted to focus better on a single part. For this, I chose the EuroStoxx50 index, since it included many of the most important companies in Europe.

At the time of data collection (May 2024), the following 50 companies were the constituents of the index: LVMH Moet Hennessy Louis Vuitton SE *(LVMH)*, ASML Holding NV *(ASML)*, L'Oreal SA *(OREP)*, Hermes International SCA *(HRMS)*, SAP SE *(SAPG)*, TotalEnergies SE *(TTE)*, Siemens AG *(SIEG)*, Industria de Diseño Textil SA *(ITX)*, Schneider Electric SE *(SCHN)*, Airbus SE *(AIR)*, Sanofi SA *(SASY)*, Deutsche Telekom AG *(DTEG)*, Anheuser-Busch Inbev SA *(ABI)*, Allianz SE *(ALVG)*, L'Air Liquide SA *(AIRP)*, EssilorLuxottica SA *(ESLX)*, Safran SA *(SAF)*, Prosus NV *(PRX)*, Iberdrola SA *(IBE)*, BNP Paribas SA *(BNPP)*, AXA SA *(AXAF)*, Banco Santander SA *(SAN)*, Ferrari NV *(RACE)*, Mercedes-Benz Group AG *(MBG)*, Vinci SA *(SGEF)*, Enel SpA *(ENEI)*, Intesa Sanpaolo SpA *(ISP)*, Stellantis NV *(STLAM)*, Muenchener Rueckversicherungs Gesellschaft in Muenchen AG *(MUVG)*, UniCredit SpA *(UNI)*, Bayerische Motoren Werke AG *(BMWG)*, Banco Bilbao Vizcaya Argentaria SA *(BBVA)*, ING Groep NV *(INGA)*, Infineon Technologies AG *(IFXG)*, Deutsche Post AG *(DHL)*, Eni SpA, BASF SE *(BASF)*, Compagnie de Saint Gobain SA *(SGOB)*, Kering SA *(PRTP)*, Volkswagen AG *(VOWG)*, Danone SA *(DANO)*, Adidas AG *(ADSG)*, Nordea Bank Abp *(NDAFI)*, Wolters Kluwer NV *(WLSN)*, Adyen NV *(ADYEN)*, Pernod Ricard SA *(PERP)*, Deutsche Boerse AG *(DBAG)*, Koninklijke Ahold Delhaize NV *(AD)*, Bayer AG *(BAYG)* and Nokia Oyj *(NOKIA)*.

Then, I chose what type of bonds I wanted to look for to make the comparison with the ESG rating. To do this, I used bonds between 8 and 12 years of maturity, since they are

neither too small to have a very low performance nor too large to have a high performance. Also, they are the most common ones for companies since the maturity is not very long, financing projects in the short term too. So I put a filter in Datascope for bonds with a maturity between 01/01/2025 and 12/31/2035 since it was a time interval in which I got more data. As shown in Figure 8, where we can see the main panel for the Datascope filter settings (in this case for BNP Paribas), I put this maturity filter so that to be able to choose the bonds with a maturity between 8-12 years, I put a formula in the Excel (=TR.TRIssueDate) to know when these bonds were issued, and I did a subtraction of the maturity and the issue date and filtered if they were in the range of 8 to 12 years in duration.

Figure 8. Refinitiv-LSEG Datascope Filters for BNP Paribas



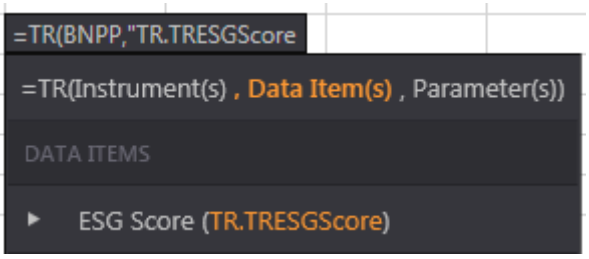
Source: Refinitif-LSEG Datascope (2024)

Other fields I did add to the Datascope filters that I wanted to get were the coupon's rate, the bond's yield, the credit rating from S&P (Standard & Poor's), Moody's and Fitch, the ISIN (International Securities Identification Number), and the RIC (Regulated Investment Company) from Refinitiv-LSEG (RRPS, as the Thomson Reuters Pricing Service), to later be able to put this ISIN in an Eikon Excel and with formulas obtain more data.

For the ISIN and RIC of the bonds, it was an immediate result, since this cannot be changed as it is like a form of identification number for the product issued by the company.

For the company's ESG ratings, I have used Refinitiv's Excel formula, both the general one (ESG score) and the subcategory ones (Environmental, Social, and Governance pillars). As shown in Figure 9, the panel shows in Excel when you put the first part of the Refinitiv-LSEG formula.

Figure 9. ESG score formula on Eikon's Excel



Source: Refitiniv Eikon (2024)

From now on in Refinitiv-LSEG Excel formulas, the instrument is the ticker, or the cell you want to analyse (could also be bond's ISIN), in this case for the company "BNP Paribas S.A.", and then the Data Item is the thing you want to get, and in the case of Figure 9, the ESG score.

Even though I only used the final ESG rating score, I also took the values for each pillar of the rating (Environmental, Social, and Governance) in case I later needed to see the power influence of each pillar on the final rating.

=TR("BNPP", "TR.TRESGScore") for general ESG score.
=TR("BNPP", "TR.EnvironmentalPillarScore") for Environmental pillar score.
=TR("BNPP", "TR.SocialPillarScore") for Social pillar score.
=TR("BNPP", "TR.GovernancePillarScore") for Governance pillar score.

In this case, even though the final result is given by numbers (score), we can easily change it to a numerical scale (rating) with Figure 4, so as to make it more visual. All data on ESG ratings were from 2023, since this year's one (2024) has not been posted yet.

For the Coupon and bond's yield, I did run the Refinitiv-LSEG formula so as to easily drag the formula, which was =TR(FR00140057U9; "TR.CouponRate") for the bond's coupon rate and =RtGet(FR00140057U9; "CF_YIELD") for the bond's yield. Both set as an example for "FR00140057U9", a BNP Paribas' bond.

After having all this data sorted, the bonds classified, and their respective ESG scores from their issuing company, I did another regression analysis, which then gave me a fairly low R-squared value. So I thought that there were still more variables that could also influence the performance of these bonds. Meanwhile, I was also thinking about how I could solve the problem of outliers, since there were companies that had bonds with 1% returns and bonds with 6% returns. As I saw some companies have very unrepresentative values, both upward and downward, to solve this, I did the median of a bond's yield for each company in the index, as the data was skewed (asymmetric). The median is a very useful average value when data is skewed since it does order, from lowest to highest, and takes the middle value of the sample, while doing the mean of all would not be representative at all as it is heavily influenced by outlier values.

After doing the median for each company's bond yields and adding a new variable, which in this case was the credit rating of each bond, I did another regression analysis to see if my hypothesis was correct about the outliers, and so it was. The R-squared value went up pretty much. A significant increase told me that I was on the right track, but that I had to think about adding even more variables that would explain the behaviour of bond yields. For the credit rating, I prioritised first the S&P rating since it's the company that gave me the most ratings out of the three, then Moody's, and in case the bond did not have a rating from any of the previous ones, the Fitch rating. To do so, I ran the Refinitiv-LSEG formula on Excel.

=TR(FR00140057U9; "TR.FiSPRating") for S&P's rating.
=TR(FR00140057U9; "TR.FiMoodysRating") for Moody's rating.
=TR(FR00140057U9; "TR.FiFitchsRating") for Fitch's rating.

So I have used, more or less, all the main features of a bonus. The issuer has filtered according to the EuroStoxx50. For maturity, I have filtered bonds that have not yet matured and that have a long term so that we can compare similar bonds. For the coupon rate, I have not filtered since there may be bonds that are not simple, that are convertible, or zero coupon. For the yield, I have also filtered, removing a large part of

the outliers in order to have a more representative sample without extreme values. I have put the credit quality of the bond as a new variable that can influence a lot, since a bond with a worse rating means that it has greater risk, and that is why the company pays the bond at a higher yield. The last main characteristic of the bonds is liquidity, which I have not included as another variable since the companies I have chosen are sufficiently well known, so their financial products are good and it is not very difficult to sell them.

For the other independent variables, I did get the data through Refinitiv-LSEG Excel formulas; in this case, I only took into account the issuer of the bonds since it's a single value for the entire company. To get the ROE I used the formula of the TR.ROEMean, which is the average of all broker estimations of this value. I used this formula and not the direct ("TR.ROE") because some companies have no value using this formula.

=TR("BNPP"; "TR.ROEMean")

Alongside, for the WACC, I also used the Refinitiv-LSEG Excel formula. WACC as the cost of financing projects, investments... In the form of debt for the company.

=TR("BNPP"; "TR.WACC")

2.3. Results analysis

After collecting, organising, and processing all the data, we are left with the results of Table 2. In this table, we can see that there are only 43 companies, although there are 50 in the index. This happens because there are companies that do not issue bonds or whose bonds do not meet the filters and characteristics that we have set. The companies that do not appear in the table are the following: L'Oreal SA, Hermes International SCA, Industria de Diseño Textil SA (Inditex), Ferrari NV, ING Groep NV, Adyen NV, and Muenchener Rueckversicherungs Gesellschaft in Muenchen AG.

Table 2. Data analysis on Eurostoxx50

Ticker	YIELD	ESG	CREDIT RATING	ROE	WACC
LVMH	3,277	74,330	18,000	23,377	8,683
ASML	3,222	73,961	16,000	51,248	9,314
SAPG	3,265	89,216	17,000	11,688	8,519
TTE	3,587	82,096	17,000	17,868	6,644
SIEG	3,354	83,493	18,000	17,082	8,140
SCHN	3,519	76,675	16,000	17,167	7,798
AIR	3,521	84,190	16,000	26,191	9,060
SASY	3,327	89,645	19,000	11,901	6,214
DTEG	5,101	81,468	14,000	14,204	7,376
ALVG	3,361	89,706	19,000	17,785	6,504
ABI	4,807	79,525	15,000	8,196	5,685
AIRP	3,406	84,506	16,000	13,630	6,996
ESLX	3,250	68,856	16,000	8,126	7,550
SAF	3,293	71,482	15,000	23,349	9,758
PRX	5,274	64,012	13,000	13,118	6,566
MBG	5,322	92,304	16,000	12,792	9,923
BNPP	5,769	92,044	15,000	9,220	6,208
AXAF	3,362	77,164	17,000	16,959	8,410
SAN	4,542	89,018	15,000	11,720	4,627
IBE	3,640	75,254	14,000	11,440	5,628
STLAM	3,868	87,213	14,000	18,660	7,391
BMWG	5,269	88,653	16,000	11,903	6,351
SGEF	3,562	83,606	15,000	16,668	6,730
ISP	4,948	91,799	13,000	14,229	6,530
BBVA	4,407	87,696	15,000	15,690	14,889
ENEI	5,467	90,219	13,000	20,239	6,570
CRDI	3,969	84,488	18,000	14,205	7,226
ENI	3,991	87,307	15,000	12,071	7,559
DHL	3,202	75,664	16,000	15,518	6,838
BASF	3,760	89,751	15,000	8,318	7,485
IFXG	3,602	79,098	14,000	13,307	11,308
PRTP	3,769	75,063	15,000	14,210	7,305
ADSG	3,339	88,976	15,000	11,816	7,477
VOWG	3,915	80,598	14,000	8,179	4,670
DANO	3,568	85,719	14,000	13,211	5,374
NDAFI	3,803	78,338	18,000	16,274	3,580
SGOB	3,683	87,483	14,000	12,976	7,897
PERP	3,720	67,110	14,000	12,739	5,435
WLSN	3,595	67,164	14,000	70,913	5,602
DBAG	3,438	69,215	18,000	6,246	3,542
BAYG	4,418	92,859	13,000	13,097	6,286
AD	3,577	70,006	14,000	15,641	4,504
NOKIA	4,312	83,588	12,000	8,466	7,192

Source: Own creation

Before commenting on the results obtained, we would have to see the variables separately to analyse them with descriptive statistics, to see values such as the maximum, minimum, mean, median… in order to better understand how each variable works, and see if they have significant value or not.

Table 3. Yield analysis

YIELD	
Mean	3,9390857
Typical error	0,109739
Median	3,639574
Mode	#N/D
Standard deviation	0,719607
Sample variance	0,5178342
Kurtosis	0,1110445
Asymmetry coefficient	1,1419701
Minimum	3,201707
Maximum	5,768717
N	43

Source: Own creation

Bond's yield values go from 3,201% to 5,768%, a mean of 3,939% and a median of 3,639%. The asymmetry coefficient of 1,141 demonstrates a right-skewed distribution, with higher values being more common. The distribution is comparable to the normal distribution (mesokurtic), as indicated by the kurtosis value of 0,111 though the asymmetry coefficient being positive. The standard deviation value is 0,719 reflecting medium variability. The data is mostly well distributed around the mean, with only a small bias towards higher values and a few outliers.

Table 4. Credit rating analysis

CREDIT RATING	
Mean	15,372093
Typical error	0,264184
Median	15
Mode	14
Standard deviation	1,7323705
Sample variance	3,0011074
Kurtosis	-0,4856792
Asymmetry coefficient	0,3990416
Minimum	12
Maximum	19
N	43

Source: Own creation

Credit ratings go from 12 (or BBB- for S&P) to 19 (or AA for S&P), a mean of 15,372, a median of 15, and a mode of 14 show a highly symmetric distribution with a minor right skew shown by the asymmetry coefficient of 0,399. A kurtosis value of -0,486, means that the values are flatter than typical, indicating fewer extreme values (closer to a

platykurtic distribution). The standard deviation value is 1,732 reflecting moderate variability. Overall, there are not many outliers and a modest dispersion around the mean, with a small influence towards higher values.

Table 6. ESG rating analysis

	ESG
Mean	81,640847
Typical error	1,2242303
Median	83,588459
Mode	#N/D
Standard deviation	8,0278149
Sample variance	64,445813
Kurtosis	-0,827886
Asymmetry coefficient	-0,5109371
Minimum	64,012209
Maximum	92,858547
N	43

Source: Own creation

The ESG ratings range from 64,012 to 92,868, a mean of 81,640 and a median of 83,588. A kurtosis of -0,827 denotes lighter tails and fewer extreme values, following a platykurtic distribution. The distribution has a longer tail on the lower end (negative outliers), as indicated by the asymmetry coefficient of -0,510. The standard deviation value is 8,027 reflecting moderate variability. In general, the data has a moderate distribution around the mean, with minor outliers and a slight tendency towards lower values.

Table 5. WACC analysis

	WACC
Mean	7,1475827
Typical error	0,3084854
Median	6,996465
Mode	#N/D
Standard deviation	2,0228739
Sample variance	4,0920189
Kurtosis	4,2209194
Asymmetry coefficient	1,3138735
Minimum	3,5423484
Maximum	14,888814
N	43

Source: Own creation

WACC goes from 3,542 to 14,888, a mean of 7,147 and a median of 6,996 mean that the majority of values cluster around the central value. A kurtosis value of 4,220 means that it has larger tails and more extreme values than a normal distribution following a leptokurtic distribution. A distribution that is skewed and has a larger tail on the right side is shown by the asymmetry coefficient of 1,313 (positive outliers). The standard deviation value is 2,022 showing moderate variability. The data is often somewhat dispersed about the mean, with a notable presence of high-value outliers.

Table 6. ROE analysis

ROE	
Mean	16,317154
Typical error	1,6882385
Median	13,63
Mode	#N/D
Standard deviation	11,07052
Sample variance	122,55641
Kurtosis	15,839391
Asymmetry coefficient	3,7203029
Minimum	6,24586
Maximum	70,91258
N	43

Source: Own creation

The ROE values vary from 6,245 to 70,912 a mean of 16,317 and a median of 13,63. An asymmetry coefficient of 3,720 suggests a strong right skew where extreme high values are more common. A high kurtosis of 15,839 means it has numerous extreme values and is heavy-tailed following a leptokurtic distribution. The standard deviation value is 11,070 showing significant variability. Overall, there is a noticeable influence towards higher values and a substantial presence of outliers, although values are generally distributed around the mean.

After analysing each individual variable, and as explained in the Methodology part, in order to analyse the results well, we have to look at different values of the regression analysis. The most important and representative ones are the R-squared (or Determination coefficient), adjusted R-squared, and beta coefficients of each variable. Alongside these main values, we can also look at the f-value, p-value, and the probability of each variable's coefficient.

Table 7. Yield - ESG MLR analysis

YIELD - ESG	
Regression Statistics	
Multiple correlation coefficient	0,345856658
Determination coefficient R^2	0,119616828
Adjusted R^2	0,098144068
Typical error	0,683382642
Observations	43

VARIANCE ANALYSIS

	Degrees of freedom	*Sum of squares*	*Mean squares*	*F*	*p-value*
Regression	1	2,601550696	2,601550696	5,570631186	0,023103721
Residuals	41	19,14748526	0,467011836		
Total	42	21,74903596			

	Coefficients	*Typical error*	*t-statistic*	*Probability*	*Lower 95%*	*Top 95%*
Interception	1,408030286	1,077433773	1,306836969	0,198550837	-0,767891362	3,583951935
ESG	0,031002317	0,013135359	2,360218461	0,023103721	0,004474921	0,057529712

Source: Own creation

The first MLR analysis I did was of the bond yield and the ESG rating to mainly see the R-squared value, whether it was significant or not. The R-squared value was 0,1196, or 11,96%, which means that 11,96% of the variance of the dependent variable (bond's yield) is explained by the movements of the independent variable (ESG rating). In this case, by only having 1 dependent variable and 1 independent variable, the value of the adjusted R-squared does not make much sense to look at. The standard error was 0.6834, a not very high value, which meant that the values were relatively close to the regression line (the lower the standard error, the closer to the line). The F-value shows if the model is a good fit for the data collected (a higher f-value shows a better fit). In this case, the f-value is 5,5706 a good result, though we do have to compare it with other MLR analysis. The p-value was 0,0231 which means that the regression model, at a significance level of 5% (95% confidence level), was meaningful. The intersection value, which is when all values are 0, was 1,4080 although with a probability level of 0,1986, or 19,86%, we can say that it is not representative. On the other hand, the beta coefficient of the ESG rating is 0,0310 (a positive value meaning that an increase in the ESG rating will lead to an increase in the bond's yield) with a probability of 0,0231, or 2,31%, and with this, we can say that it is statistically significant. This means that every time the ESG rating increases by one unit, the bond yield increases by 0,0310 units constantly. The model shows a modest positive relationship, though it can be improved.

Table 8. Yield - ESG, credit rating MLR analysis

YIELD - ESG,CREDIT

Regression Statistics	
Multiple correlation coefficient	0,565583487
Determination coefficient R^2	0,319884681
Adjusted R^2	0,285878915
Typical error	0,608108801
Observations	43

VARIANCE ANALYSIS

	Degrees of freedom	*Sum of squares*	*Mean squares*	*F*	*p-value*
Regression	2	6,957183423	3,478591712	9,406777692	0,000448385
Residuals	40	14,79185254	0,369796313		
Total	42	21,74903596			

	Coefficients	*Typical error*	*t-statistic*	*Probability*	*Lower 95%*	*Top 95%*
Interception	4,194209762	1,256295853	3,338552579	0,001830157	1,655141129	6,733278394
ESG	0,031884939	0,011691343	2,727226452	0,009437786	0,008255854	0,055514024
CREDIT RATING	-0,185936781	0,054177751	-3,431976754	0,001405675	-0,2954341	-0,076439462

Source: Own creation

The next MLR analysis I did was after adding the bond's credit ratings as an independent variable. In this case, the R-squared value increases to 0,3199 or 31,99%, a much more significant value. The adjusted R-squared value also increased to 0,2859 or 28,59%, meaning that although one more variable has been added to the model, the increase in the R-squared value is greater than the increase in variables. The standard error was 0,6081 meaning that compared to the previous MLR analysis, the distance of the points from the regression line had decreased, meaning that the model is now more representative than before. The f-value has also increased to 9,4067 meaning the model is now more representative. The p-value of 0,0004 means that the model is statistically significant at the 1% significance level (the added variable is very meaningful to the model analysis). The intersection value of 4,1942, with a probability of 0,0018 tells us that it is statistically significant, even though it is higher than before. The coefficient for ESG rating has slightly increased up to 0,0319 (a positive value meaning that an increase in the ESG rating will lead to an increase in the bond's yield), while its probability has decreased to 0,0094 meaning that now it is more significant. The new variable credit rating coefficient is at -0,1859 (a negative value meaning that an increase in the credit rating value will lead to a decrease in the bond yield, as a better credit rating leads to lower risk and lower risks lead to lower expected returns) with a probability of 0,0014, meaning it is statistically significant. The newer model shows a better relationship with the bond's yield and better significance levels.

Table 9. Yield - ESG, credit rating, ROE, WACC MLR analysis

YIELD - ESG,CREDIT,ROE,WACC

Regression Statistics	
Multiple correlation coefficient	0,583278631
Determination coefficient R^2	0,340213962
Adjusted R^2	0,2707628
Typical error	0,614511151
Observations	43

VARIANCE ANALYSIS

	Degrees of freedom	*Sum of squares*	*Mean squares*	*F*	*p-value*
Regression	4	7,399325689	1,849831422	4,8986072	0,002764615
Residuals	38	14,34971027	0,377623954		
Total	42	21,74903596			

	Coefficients	*Typical error*	*t-statistic*	*Probability*	*Lower 95%*	*Top 95%*
Interception	4,638795213	1,351860672	3,431415166	0,001462012	1,902096358	7,375494068
ESG	0,030438558	0,012732064	2,390700948	0,021876085	0,004663842	0,056213275
CREDIT RATING	-0,185147156	0,054753351	-3,381476223	0,00168132	-0,295989521	-0,074304791
ROE	-0,006511708	0,009170135	-0,710099506	0,481977689	-0,025075675	0,012052259
WACC	-0,032512719	0,048354185	-0,672386872	0,505405627	-0,130400649	0,065375211

Source: Own creation

The last MLR analysis I did was adding the independent variables of ROE and WACC for the issuer. So in the end, I had 1 dependent variable, and 4 independent variables. The first result I looked at was the R-squared value, which measured 0,3402, or 34,02%. Although this result was higher than the previous analysis, it was not much larger when adding 2 more variables. To better interpret this result, we can look at the adjusted R-squared value, which takes into account the number of variables we added to the analysis. This adjusted R-squared value was 0,2708 or 27,08%. As we can see, the result has decreased compared to the previous analysis. This is because the increase in the R-squared value has been lower than the increase in variables in the analysis. So we can say that even when adding more variables (in this case, ROE and WACC) although they have a relationship with bond yield, this relationship is not significantly higher than that demonstrated by the ESG rating or the credit rating of the bond. As explained above, the standard error has been 0,6145, a little larger than in the previous analysis, again demonstrating that more variables do not mean an increase in the significant value of the representation of the model. The f-value has also decreased to 4,8986, and the p-value has increased to 0,0027 contributing to the previous explanation. Finally, from the coefficients of the variables, we can see that the intercept value has increased to 4,6387 with a probability of 0,0014, a little more significant than in the previous analysis. The beta coefficient of the ESG Rating has decreased to 0,0304 and a probability, slightly higher than the previous analysis, of 0,0218. For the credit rating, the coefficient was -0.1851 and a probability of 0,0016, a

result very little lower than the previous analysis. While the new ROE and WACC variables have also had negative coefficients of -0,0065 and -0,0325 respectively, which demonstrate an inverse relationship with the bond yield variable, Their probabilities have been 0,4819 and 0,5054 respectively, values that show us that these variables are not statistically significant in the analysis model. Overall, we can say that the ESG rating and credit rating variables are significant, while ROE and WACC are not. Therefore, we can say that the most significantly adjusted analysis has been the second, since even adding more variables has not given us an adjusted increase in the number of variables added.

One of the problems I had when choosing the methodology was perhaps the variables could have multicollinearity, since for example the WACC and the bond's yield, are forms of financing for the company, and could be interconnecting. Then heteroscedasticity could be a problem since, as we will see later, the residuals did not give us a mean of 0, although it was a value close to this as we added more variables to the model.

3. Conclusions

The main goal of the project was to be able to see if there was a direct relationship between the ESG rating and corporate bond's yield, using Multiple Linear Regression model analysis for the EuroStoxx 50 for May 2024, for bonds maturing between January 1, 2025, and December 31, 2035, with a length of between 8 and 12 years.

After doing 3 different MLR model analysis, as a final conclusion we can say that, in this scenario, the variables that most significantly influence their bond yields have been the ESG rating and the credit rating of each bond. While the ROE and WACC variables for the issuer of these bonds have not been very significant, as the increase in R-squared has not matched the increase in the amount of variables. The ESG rating in this case has influenced the bond yield of the companies in the EuroStoxx 50 sample to a certain extent. We cannot generalise the results, since not all markets or industries do not follow the same trends, also not being from the same years. Although, seeing the trend of searches and demand for this type of information, you could reach the hypothesis that this rating is here to stay and that if not now, in the near future it will have the relevance it deserves.

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5. Annex

LVMH

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0013482833	FR211669071=RRPS	8,005	0,125	3,248	AA-	Aa3	NULL
FR0013482841	FR211669101=RRPS	11,008	0,375	3,277	AA-	Aa3	NULL
FR001400KJO0	FR001400KJO0=RRPS	10,008	3,5	3,416	AA-	Aa3	NULL

ASML

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1405780963	NL140578096=RRPS	10,005	1,375	3,413	NULL	A2	A
XS1527556192	NL152755619=RRPS	10,496	1,625	3,387	NULL	A2	A
XS2010032378	NL201003237=RRPS	10,008	0,25	3,222	NULL	A2	A
XS2166219720	NL216621972=RRPS	9,005	0,625	3,217	NULL	A2	A
XS2473687106	NL247368710=RRPS	10,008	2,25	3,155	NULL	A2	A

SAPG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
DE000A13SL34	DE114008460=RRPS	12,266	1,75	3,080	A+	A1	NULL
DE000A14KJF5	DE121271842=RRPS	10,008	1	3,674	A+	A1	NULL
DE000A2G8VT5	DE111730873=RRPS	8,005	1	3,611	A+	A1	NULL
DE000A2G8VU3	DE111730857=RRPS	12,008	1,375	3,259	A+	A1	NULL
DE000A2TSTF5	DE111730644=RRPS	9,255	1,25	3,265	A+	A1	NULL
DE000A2TSTG3	DE111730806=RRPS	12,255	1,625	3,283	A+	A1	NULL
XS2176715667	DE217671566=RRPS	9,005	0,375	3,265	A+	NR	NULL

TTE

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
AU3CB0232858	AUTOT0925=RRPS	10,008	4	4,542	A+	A1	AA-
CH0282018982	CH28201898=RRPS	12,008	0,5	1,318	A+	A1	AA-
CH0425766539	FR185550621=RRPS	8,011	0,288	1,304	A+	A1	AA-
CH0481013800	CH48101380=RRPS	10,510	0,166	1,422	A+	A1	AA-
US89152UAH59	89152UAH5=RRPS	10,008	3,883	5,103	A+	A1	AA-
US89153VAQ23	89153VAQ2=RRPS	10,008	3,455	5,105	A+	A1	AA-
US89153VAT61	89153VAT6=RRPS	10,512	2,829	5,117	A+	A1	AA-
US89157XAA90	89157XAA9=RRPS	10,005	5,15	5,387	A+	A1	AA-
XS0994991411	FR099499141=RRPS	12,008	2,875	3,585	A+	A1	AA-
XS1048519679	FR104851967=RRPS	12,008	2,5	3,563	A+	A1	AA-
XS1139315581	FR113931558=RRPS	10,337	1,375	3,814	A+	A1	AA-
XS1151960819	FR115196081=RRPS	10,340	2,92	4,941	A+	A1	AA-
XS1291204284	FR129120428=RRPS	11,008	3,088	5,075	A+	A1	AA-
XS1443997819	FR144399781=RRPS	12,008	0,75	3,526	A+	A1	AA-
XS1693818525	FR169381852=RRPS	12,008	1,375	3,587	A+	A1	AA-
XS1874122267	FR187412226=RRPS	12,008	1,491	3,578	A+	A1	AA-
XS1874122770	FR187412277=RRPS	8,501	1,023	3,559	A+	A1	AA-
XS2004381674	FR200438167=RRPS	9,008	0,696	3,572	A+	A1	AA-
XS2049782639	FR204978263=RRPS	12,008	1,405	4,838	A+	A1	AA-
XS2153409029	FR215340902=RRPS	12,008	1,994	3,593	A+	A1	AA-
XS2176605306	FR217660530=RRPS	11,005	0,952	3,549	A+	A1	AA-

SIEG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US82620KAE38	82620KAE3=RRPS	10,008	3,25	5,518	AA-	Aa3	A+
US82620KAL70	82620KAL7=RRPS	10,088	2,35	5,198	AA-	Aa3	A+
US82620KAU79	82620KAU7=RRPS	10,005	3,4	5,148	AA-	Aa3	A+
US82620KBE29	82620KBE2=RRPS	10,005	2,15	5,160	AA-	Aa3	A+
USN82008AE85	DE123760042=RRPS	10,008	3,25	5,518	AA-	Aa3	A+
USN82008AL29	DE149075356=RRPS	10,088	2,35	5,198	AA-	Aa3	A+
USN82008AU28	DE157934961=RRPS	10,005	3,4	5,148	AA-	Aa3	A+
USN82008BA54	DE231308911=RRPS	10,005	2,15	5,160	AA-	Aa3	A+
XS1874127902	DE187412790=RRPS	12,008	1,375	3,232	AA-	Aa3	NULL
XS1874128033	DE187412803=RRPS	9,005	1	3,151	AA-	Aa3	NULL
XS1955187775	DE195518777=RRPS	9,005	0,9	3,218	AA-	Aa3	A+
XS1955187858	DE195518785=RRPS	12,008	1,25	3,204	AA-	Aa3	A+
XS2049616621	DE204961662=RRPS	10,008	0,125	2,970	AA-	Aa3	A+
XS2118273601	DE211827360=RRPS	12,008	0,5	3,324	AA-	Aa3	A+
XS2118276026	DE211827602=RRPS	9,008	0,25	3,240	AA-	Aa3	A+
XS2446844594	DE244684459=RRPS	8,005	1	3,292	AA-	Aa3	A+
XS2526839506	DE252683950=RRPS	11,008	3	3,409	AA-	Aa3	A+
XS2526839761	DE252683976=RRPS	8,008	2,75	3,281	AA-	Aa3	A+
XS2589790109	DE258979010=RRPS	8,501	3,375	3,302	AA-	Aa3	A+
XS2769894135	DE276989413=RRPS	8,252	3,125	3,385	AA-	Aa3	A+

SCHN

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0012601367	FR0012601367=RRPS	10,008	0,875	3,830	A	A3	NULL
FR0013015559	FR0013015559=RRPS	10,008	1,841	3,712	A	WR	NULL
FR0013302809	FR0013302809=RRPS	9,005	0,875	3,254	A	NR	NULL
FR0013344215	FR0013344215=RRPS	9,005	1,375	3,319	A	NR	NULL
FR0013396876	FR0013396876=RRPS	9,005	1,5	3,313	A	NULL	NULL
FR0013494168	FR0013494168=RRPS	9,005	0,25	3,286	A	NR	NULL
FR001400DTA3	FR001400DTA3=RRPS	10,008	3,5	3,515	A	NULL	NULL
FR001400F711	FR001400F711=RRPS	11,255	3,375	3,522	A	NR	NULL
FR001400IJU1	FR001400IJU1=RRPS	10,008	3,5	3,550	A	NR	NULL
FR001400N285	FR001400N285=RRPS	11,756	3,25	3,633	A	NULL	NULL

AIR

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US009279AA86	009279AA8=RRPS	10,005	3,15	5,187	A	A2	A-
USN0280EAR64	NL159601404=RRPS	10,005	3,15	5,187	A	A2	A-
XS1410582586	NL141058258=RRPS	10,005	0,875	3,627	A	A2	A-
XS2152796269	NL215279626=RRPS	8,005	2	3,374	A	A2	A-
XS2152796426	NL215279642=RRPS	12,008	2,375	3,414	A	A2	A-
XS2185867913	NL218586791=RRPS	10,005	1,625	3,415	A	A2	A-

SASY

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0012146801	FR110774346=RRPS	12,008	1,75	3,514	AA	A1	WD
FR0012969038	FR0012969038=RRPS	10,008	1,5	3,610	AA	A1	WD
FR0013144003	FR0013144003=RRPS	12,008	1,125	3,318	AA	A1	WD
FR0013201639	FR0013201639=RRPS	10,340	0,5	3,327	AA	A1	WD
FR0013324340	FR0013324340=RRPS	8,005	1	3,492	AA	A1	WD
FR0013324357	FR0013324357=RRPS	12,008	1,375	3,305	AA	A1	WD
FR0013409844	FR0013409844=RRPS	10,008	0,875	3,291	AA	A1	WD
FR0013505112	FR0013505112=RRPS	10,011	1,5	3,290	AA	A1	WD
US801060AD60	801060AD6=RRPS	10,008	3,625	4,975	AA	A1	WD

DTEG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
CH0521333655	CH52133365=RRPS	12,008	0,435	1,563	BBB+	Baa1	BBB+
DE000A2TSDE2	DE196474064=RRPS	12,008	1,75	3,283	BBB+	Baa1	BBB+
US25156PBA03	25156PBA0=RRPS	10,005	3,6	5,463	BBB+	Baa1	BBB+
US25156PBB85	25156PBB8=RRPS	10,008	4,375	5,447	BBB+	Baa1	BBB+
USN2557FFL33	DE184328534=RRPS	10,008	4,375	5,447	BBB+	Baa1	BBB+
USN27915AS11	DE155099933=RRPS	10,005	3,6	5,463	BBB+	Baa1	BBB+
XS1382791975	DE138279197=RRPS	12,038	1,5	3,326	BBB+	Baa1	BBB+
XS1557095616	DE155709561=RRPS	10,005	1,375	3,363	BBB+	Baa1	BBB+
XS1595796035	DE159579603=RRPS	12,008	2,25	4,756	BBB+	Baa1	BBB+
XS1599462584	DE159946258=RRPS	10,005	2,95	5,526	BBB+	Baa1	BBB+
XS1617898363	DE161789836=RRPS	9,005	1,125	3,551	BBB+	Baa1	BBB+
XS1644482827	DE164448282=RRPS	10,005	2,7	5,519	NULL	Baa1	BBB+
XS1791184168	DE179118416=RRPS	10,008	3,85	5,843	BBB+	Baa1	BBB+
XS1802353612	DE180235361=RRPS	10,008	2,97	5,508	NULL	Baa1	BBB+
XS1828033834	DE182803383=RRPS	11,510	2	3,221	BBB+	Baa1	BBB+
XS2024715794	DE202471579=RRPS	8,005	0,5	3,214	BBB+	Baa1	BBB+

ALVG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
DE000A19S4V6	DE173090366=RRPS	10,005	0,875	3,209	AA	Aa2	AA-
DE000A28RSR6	DE210135260=RRPS	11,008	0,5	3,326	AA	Aa2	AA-
DE000A2RWAY2	DE193612296=RRPS	11,008	1,5	3,361	AA	Aa2	AA-
DE000A3KY359	DE241164373=RRPS	12,008	0,5	3,327	AA	Aa2	AA-
XS1334172225	DE133417222=RRPS	10,008	1,511	3,564	NULL	NULL	NULL
XS1921451040	DE192145104=RRPS	10,011	1,413	3,609	NULL	NULL	NULL
XS1937717772	DE193771777=RRPS	10,008	1,34	3,604	NULL	NULL	NULL

ESLX

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0013463668	FR0013463668=RRPS	8,005	0,375	3,371	A	A2	NULL
FR0013463676	FR0013463676=RRPS	12,008	0,75	3,189	A	A2	NULL
FR0013516077	FR0013516077=RRPS	8,005	0,5	3,250	A	A2	NULL

SAF

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0014002G36	FR0014002G36=RRPS	10,008	0,75	3,293	A-	NULL	NULL

ABI

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
AU3CB0246676	AUSAB0927=RRPS	10,005	4,1	5,147	A-	A3	WD
BE6258029741	BE097404976=RRPS	12,008	4	5,242	A-	A3	WD
BE6265142099	BE105134355=RRPS	12,008	2,7	3,516	A-	A3	WD
BE6285455497	BE138534090=RRPS	11,975	2	3,260	A-	A3	WD
BE6295393936	BE161740101=RRPS	12,008	2,25	4,603	A-	A3	WD
BE6301510028	BE175240047=RRPS	9,003	1,15	3,475	A-	A3	WD
BE6312821612	BE197438665=RRPS	8,263	1,125	3,437	A-	A3	WD
BE6312822628	BE197438681=RRPS	12,005	1,65	3,481	A-	A3	WD
BE6320935271	BE215232140=RRPS	12,008	2,875	3,552	A-	A3	WD
US03523TBY38	03523TBY3=RRPS	10,241	5	5,386	A-	A3	NULL
US035240AL43	035240AL4=RRPS	10,033	4	5,011	A-	A3	WD
US035240AQ30	035240AQ3=RRPS	10,008	4,75	5,127	A-	A3	WD
US035240AR13	035240AR1=RRPS	12,008	4,9	5,067	A-	A3	WD
US035240AV25	035240AV2=RRPS	10,167	3,5	5,198	A-	A3	WD

AIRP

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0011699842	FR101957578=RRPS	12,008	3	3,472	NULL	NULL	NULL
FR0012766889	FR124157722=RRPS	10,008	1,25	3,611	A	A2	NULL
FR0013182847	FR143273270=RRPS	12,008	1,25	3,336	A	A2	NULL
FR0013241346	FR157604040=RRPS	10,005	1	3,392	A	A2	NULL
FR0013428067	FR201534887=RRPS	11,008	0,625	3,397	A	A2	NULL
FR0013505567	FR215005445=RRPS	10,005	1,375	3,354	A	A2	NULL
FR0014003N69	FR234598937=RRPS	10,005	0,375	3,345	A	A2	NULL
FR0014005HY8	FR238818052=RRPS	12,008	0,375	3,395	A	A2	NULL
FR001400CND2	FR253478390=RRPS	10,008	2,875	3,415	A	A2	NULL
FR001400KNS3	FR268311599=RRPS	8,005	0,82875	0,897	A	A2	NULL
US00913RAD89	00913RAD8=RRPS	10,005	2,5	5,365	A	A2	NULL
US00913RAF38	00913RAF3=RRPS	10,008	2,25	5,081	A	A2	NULL
USF0183JHQ79	FR149677810=RRPS	10,005	2,5	5,365	A	A2	NULL
USF0183JNQ06	FR205218114=RRPS	10,008	2,25	5,081	A	A2	NULL

PRX

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US62856RAC97	62856RAC9=RRPS	10,008	5,5	6,079	BBB	Baa3	WD
US62856RAD70	62856RAD7=RRPS	10,005	4,85	6,217	BBB	Baa3	NULL
US74365PAA66	74365PAA6=RRPS	10,008	3,68	6,727	BBB	Baa3	NULL
US74365PAF53	74365PAF5=RRPS	10,005	3,061	6,667	BBB	Baa3	NULL
US74365PAH10	74365PAH1=RRPS	10,005	4,193	6,757	BBB	Baa3	NULL
USN5946FAC16	ZA126384912=RRPS	10,008	5,5	6,079	BBB	Baa3	WD
USN5946FAD98	ZA164266010=RRPS	10,005	4,85	6,217	BBB	Baa3	NULL
USN7163RAA16	ZA210661417=RRPS	10,008	3,68	6,727	BBB	Baa3	NULL
USN7163RAR41	ZA236398650=RRPS	10,005	3,061	6,667	BBB	Baa3	NULL
USN7163RAX19	ZA243453500=RRPS	10,005	4,193	6,757	BBB	Baa3	NULL
XS2211114942	ZA221111494=RRPS	8,005	1,539	4,562	BBB	Baa3	NULL
XS2211115329	ZA221111532=RRPS	12,008	2,031	5,017	BBB	Baa3	NULL
XS2211183244	ZA221118324=RRPS	8,005	1,539	4,602	BBB	Baa3	NULL
XS2211183756	ZA221118375=RRPS	12,008	2,031	5,091	BBB	Baa3	NULL
XS2249894408	ZA224989440=RRPS	11,748	2,03	5,091	NULL	NULL	NULL
XS2263801917	ZA226380191=RRPS	11,660	2,031	5,091	NULL	NULL	NULL
XS2360853332	ZA236085333=RRPS	8,005	1,288	4,708	BBB	Baa3	NULL
XS2361047454	ZA236104745=RRPS	8,005	1,288	4,650	BBB	Baa3	NULL
XS2363203089	ZA236320308=RRPS	12,008	1,985	5,147	BBB	Baa3	NULL
XS2363203675	ZA236320367=RRPS	12,008	1,985	5,078	BBB	Baa3	NULL
XS2430287362	ZA243028736=RRPS	8,005	2,085	4,833	BBB	Baa3	NULL
XS2430287875	ZA243028787=RRPS	12,008	2,778	5,497	BBB	Baa3	NULL
XS2433208019	ZA243320801=RRPS	8,005	2,085	4,778	BBB	Baa3	NULL
XS2433210007	ZA243321000=RRPS	12,008	2,778	5,401	BBB	Baa3	NULL

AXAF

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1410426024	FR141042602=RRPS	12,014	1,125	3,197	A+	A1	WD
XS2401704189	FR240170418=RRPS	8,504	1,25	4,318	BBB+	NULL	NULL
XS2537251170	FR253725117=RRPS	8,005	3,75	3,345	A+	A1	WD
XS2573807778	FR257380777=RRPS	10,008	3,625	3,379	A+	A1	NULL

MBG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
DE000A169NC2	DE140844438=RRPS	12,008	1,375	3,257	A	A2	A
DE000A194DE7	DE186398564=RRPS	8,510	1,5	3,350	A	A2	A
DE000A289QR9	DE222943159=RRPS	10,005	0,75	3,308	A	A2	A
DE000A289XG8	DE217766788=RRPS	10,005	2,375	3,355	A	A2	A
DE000A2AAL31	DE137669609=RRPS	10,005	1,5	3,409	A	A2	A
DE000A2DADM7	DE157212117=RRPS	8,005	0,85	3,784	A	A2	A
DE000A2GSCW3	DE164068382=RRPS	12,008	1,5	3,342	A	A2	A
DE000A2GSLY0	DE171715431=RRPS	10,005	1	3,286	A	A2	A
DE000A2TR083	DE195743975=RRPS	12,008	2	3,321	A	A2	A
DE000A2YNZX6	DE203853467=RRPS	10,512	0,75	3,343	A	A2	A
DE000A2YPFU9	DE207774448=RRPS	12,008	1,125	3,413	A	A2	A
DE000A3H3JM4	DE231413430=RRPS	12,008	0,75	3,425	A	A2	A
DE000A3LH6U5	DE000A3LH6U5=RRPS	8,005	3,7	3,374	A	A2	A
DE000A3LSYH6	DE000A3LSYH6=RRPS	8,005	3,25	3,575	A	A2	A
US233851BW32	233851BW3=RRPS	10,011	3,3	5,554	A	A2	A
US233851CB85	233851CB8=RRPS	10,008	3,5	5,543	A	A2	A
US233851CU66	233851CU6=RRPS	10,005	3,45	5,267	A	A2	A
US233851DF80	233851DF8=RRPS	10,005	3,75	5,387	A	A2	A
US233851DT84	233851DT8=RRPS	10,008	4,3	5,322	A	A2	A
US233851DW14	233851DW1=RRPS	10,008	3,1	5,362	A	A2	A
US233851EA84	233851EA8=RRPS	10,005	2,625	5,356	A	A2	A
US233851ED24	233851ED2=RRPS	10,005	2,45	5,360	A	A2	A
US58769JAM99	58769JAM9=RRPS	10,008	5,05	5,500	A	A2	A
US58769JAS69	58769JAS6=RRPS	10,008	5	5,611	A	A2	NULL
USU2339CBX57	DE123496299=RRPS	10,011	3,3	5,554	A	A2	A
USU2339CCC02	DE127169586=RRPS	10,008	3,5	5,544	A	A2	A
USU2339CCQ97	DE150391580=RRPS	10,005	3,45	5,267	A	A2	A-
USU2339CDB10	DE178131923=RRPS	10,005	3,75	5,387	A	A2	A
USU2339CDQ88	DE195753075=RRPS	10,008	4,3	5,322	A	A2	A
USU2339CDU90	DE204323593=RRPS	10,008	3,1	5,362	A	A2	A
USU2339CDY13	DE213449125=RRPS	10,005	2,625	5,356	A	A2	A
USU2339CEB01	DE230934932=RRPS	10,005	2,45	5,360	A	A2	A
USU5876JAM72	USU5876JAM72=RRPS	10,008	5,05	5,500	A	A2	A
USU5876JAS43	USU5876JAS43=RRPS	10,008	5	5,611	A	A2	NULL
XS1294414617	DE129441461=RRPS	10,008	1,6	4,296	NULL	A2	A

BNPP

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
CH0506071205	CH50607120=RRPS	8,005	0,15	1,816	A-	Baa1	A+
FR0013484458	FR0013484458=RRPS	8,005	0,5	4,022	A-	Baa1	A+
FR00140057U9	FR00140057U9=RRPS	12,008	0,875	4,263	BBB+	Baa2	A-
FR00140070V0	FR241878201=RRPS	10,005	3,9	4,034	NULL	Baa2	A-
FR0014007LK5	FR0014007LK5=RRPS	8,501	0,875	4,017	A-	Baa1	A+
US05565AAR41	05565AAR4=RRPS	10,005	4,375	5,987	BBB+	Baa2	A-
US05581KAC53	05581KAC5=RRPS	10,005	4,625	5,782	BBB+	Baa2	A-
US05581LAA70	FR129864168=RRPS	10,008	4,375	6,064	BBB+	Baa2	A-
US09659W2R48	09659W2R4=RRPS	8,005	2,159	5,996	A-	Baa1	A+
US09659X2C50	FR171926491=RRPS	10,005	3,5	5,802	A-	Baa1	A+
XS1007035055	FR100703505=RRPS	12,011	3,8	5,769	NULL	NULL	NULL
XS1325645825	FR132564582=RRPS	10,175	2,75	4,097	BBB+	Baa2	A-
XS1378880253	FR137888025=RRPS	10,564	2,875	4,031	BBB+	Baa2	A-
XS1380762531	FR138076253=RRPS	10,005	9,5	11,064	NULL	Aa3	AA-
XS1419646317	FR141964631=RRPS	12,008	1,5	3,612	A+	Aa3	AA-
XS1484153744	FR148415374=RRPS	10,005	3,75	6,273	NULL	Aa3	NULL
XS1829308730	FR182930873=RRPS	10,008	3,3	5,950	NULL	NR	NULL

STLAM

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0013447166	FR0013447166=RRPS	10,008	1,125	3,657	BBB+	Baa1	BBB+
XS2199351375	NL219935137=RRPS	8,005	4,5	3,705	BBB+	Baa1	BBB+
XS2356041165	NL235604116=RRPS	12,014	1,25	3,956	BBB+	Baa1	BBB+
XS2464732770	NL246473277=RRPS	10,008	2,75	3,918	BBB+	Baa1	BBB+
XS2634690114	NL263469011=RRPS	8,005	4,25	3,868	BBB+	Baa1	NULL

SAN

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
CH0505011947	CH50501194=RRPS	8,005	0,2	1,662	A+	A2	A
ES0413900392	DEA18W1Z=RRPS	10,008	1,5	3,599	NULL	Aa1	AAA
ES0413900533	DEA2RTHB=RRPS	10,008	1,125	3,416	NULL	Aa1	AAA
ES0413900566	ES41390056=RRPS	10,008	0,25	3,441	NULL	Aa1	AAA
ES0413900574	ES41390057=RRPS	10,507	0,125	3,415	NULL	Aa1	AAA
ES0413900582	ES41390058=RRPS	10,008	0,05	3,469	NULL	Aa1	AAA
ES0413900608	ES41390060=RRPS	12,008	0,1	3,380	NULL	Aa1	AAA
ES0413900723	ES41390072=RRPS	10,005	0,18	3,438	NULL	Aa1	AAA
ES0413900731	ES41390073=RRPS	10,005	0,19	3,438	NULL	Aa1	AAA
ES0413900749	ES41390074=RRPS	10,005	0,18	3,438	NULL	Aa1	AAA
ES0413900756	ES41390075=RRPS	10,005	0,18	3,438	NULL	Aa1	AAA
ES0413900764	ES41390076=RRPS	10,005	0,02	3,400	NULL	Aa1	AAA
ES0413900780	ES41390078=RRPS	10,005	3,972	4,525	NULL	Aa1	AAA
ES0413900798	ES41390079=RRPS	10,005	4,012	4,542	NULL	Aa1	NULL
ES0413900806	ES41390080=RRPS	10,005	3,948	4,542	NULL	Aa1	AAA
ES0413900814	ES41390081=RRPS	10,008	4,011	4,542	NULL	Aa1	AAA
ES0413900863	ES41390086=RRPS	8,005	4,275	4,498	NULL	Aa1	NULL
ES0413900871	ES41390087=RRPS	10,008	4,325	4,542	NULL	Aa1	NULL
ES0413900889	ES41390088=RRPS	11,008	4,355	4,505	NULL	Aa1	NULL
ES0413900897	ES41390089=RRPS	9,005	4,305	4,525	NULL	Aa1	NULL
PTBSRGOM0034	PTBSRGOM034=RRPS	10,008	0,412	3,723	NULL	Aaa	AA-
PTBSRHOE0025	DEA19GBA=RRPS	10,005	1,481	3,585	NULL	Aaa	AA-
US05964HAB15	05964HAB1=RRPS	10,005	4,25	5,750	A-	Baa1	A-
US05964HAF29	05964HAF2=RRPS	10,342	3,8	5,807	A-	Baa1	A-
US05964HAJ41	05964HAJ4=RRPS	10,008	4,379	5,960	A-	Baa1	A-
US05964HAM79	05964HAM7=RRPS	10,005	2,958	5,841	A-	Baa1	A-
US05971KAA79	05971KAA7=RRPS	10,008	5,179	6,181	BBB+	Baa2	BBB
US05971KAG40	05971KAG4=RRPS	10,005	2,749	6,270	BBB+	Baa2	BBB
US05971KAL35	05971KAL3=RRPS	11,008	3,225	6,143	BBB+	Baa2	BBB
US80281LAA35	80281LAA3=RRPS	10,008	4,75	6,454	BB+	Baa2	BBB+
US80281LAG05	80281LAG0=RRPS	11,008	3,823	6,257	BBB	Baa1	A
US80282KAE64	80282KAE6=RRPS	10,008	4,5	6,004	BBB+	Baa2	BBB+
US80282KAN63	80282KAN6=RRPS	10,005	4,4	5,839	BBB+	Baa2	BBB+
US80282KAP12	80282KAP1=RRPS	9,356	4,4	5,839	BBB+	Baa2	BBB+
USU8029KAE20	ES164845559=RRPS	10,005	4,4	5,839	BBB+	Baa2	WD
XS0962577168	ES096257716=RRPS	12,008	2,5	4,118	AAA	Aaa	AAA

XS0963398796	ES096339879=RRPS	12,008	1,52	3,914	AAA	Aaa	AAA
XS1190889680	ES119088968=RRPS	12,008	2,26	4,440	A+	A2	A
XS1196054669	ES119605466=RRPS	12,008	2,32	4,340	A+	A2	A
XS1199439222	ES119943922=RRPS	10,008	1,125	4,033	A	A1	A+
XS1201001572	ES120100157=RRPS	10,008	2,5	4,176	BBB+	Baa2	BBB
XS1204190729	ES120419072=RRPS	10,008	1,11	4,385	A+	A2	A
XS1291333760	GB129133376=RRPS	10,008	4,75	6,454	BB+	Baa2	BBB+
XS1345415472	ES134541547=RRPS	10,008	3,625	5,600	BBB	Baa1	A
XS1400667884	ES140066788=RRPS	10,005	1,4	4,357	A+	A2	A
XS1423724522	ES142372452=RRPS	10,005	1,94	2,009	BBB+	Baa2	BBB
XS1435163859	ES143516385=RRPS	10,005	0,79	1,344	BBB	Baa1	A
XS1492669509	ES149266950=RRPS	10,005	4,733	5,964	BBB+	Baa2	BBB
XS1502528570	ES150252857=RRPS	10,005	4,75	7,368	BBB+	Baa2	BBB
XS1548444816	ES154844481=RRPS	10,005	3,125	4,011	BBB+	Baa2	BBB
XS1569879304	ES156987930=RRPS	10,005	3,45	6,237	BBB	Baa1	A
XS1585005314	ES158500531=RRPS	12,008	5,692	6,559	BBB+	Baa2	BBB
XS1638160678	ES163816067=RRPS	10,005	2,385	5,896	BBB+	Baa2	BBB
XS1649193072	ES164919307=RRPS	10,005	4,8	6,297	A-	Baa1	A-
XS1689736830	ES168973683=RRPS	12,008	2,026	4,296	A-	Baa1	A-
XS1694763498	ES169476349=RRPS	10,005	0,855	1,523	A-	Baa1	A-
XS1716333460	ES171633346=RRPS	10,005	3,01	6,175	A-	Baa1	A-
XS1816338914	ES181633891=RRPS	8,005	2,92	6,041	BBB	Baa1	A
XS1829266045	ES182926604=RRPS	12,008	2,15	4,384	A-	Baa1	A-
XS1897496946	ES189749694=RRPS	12,008	2,63	4,559	A-	Baa1	A-
XS1913309198	ES191330919=RRPS	8,507	4,678	4,826	A+	A2	A
XS1935238896	ES193523889=RRPS	12,008	2,1	4,586	A+	A2	A
XS2114143758	ES211414375=RRPS	10,008	0,05	3,097	NULL	Aaa	AAA
XS2124119061	ES212411906=RRPS	10,008	1,278	5,177	NULL	Baa2	NULL
XS2182426937	ES218242693=RRPS	10,005	1,74	4,334	A-	Baa1	A-
XS2189426872	ES218942687=RRPS	12,008	1,6	4,657	A-	Baa1	A-
XS2306848123	ES230684812=RRPS	12,008	2,327	5,468	A+	A2	A
XS2357417257	ES235741725=RRPS	8,005	0,625	3,909	A-	Baa1	A-
XS2385791046	ES238579104=RRPS	8,005	0,603	4,028	BBB	Baa1	A
XS2392916941	ES239291694=RRPS	10,005	0,79	4,692	A-	Baa1	A-
XS2392951344	ES239295134=RRPS	12,008	1	4,652	A-	Baa1	A-
XS2393518597	ES239351859=RRPS	11,008	2,25	6,216	BBB+	Baa2	BBB
XS2404651163	ES240465116=RRPS	10,005	1	3,522	A-	Baa1	A-
XS2416453129	ES241645312=RRPS	12,008	3,764	6,650	A-	Baa1	A-
XS2432614738	ES243261473=RRPS	12,008	2,655	5,100	A+	A2	A

IBE

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1398476793	ES139847679=RRPS	10,005	1,125	3,468	BBB+	Baa1	A-
XS1490726590	ES149072659=RRPS	9,005	0,375	3,691	BBB+	Baa1	A-
XS1568849282	ES156884928=RRPS	12,008	1,667	3,839	BBB+	Baa1	A-
XS1575444622	ES157544462=RRPS	8,005	1	3,927	BBB+	Baa1	A-
XS1615677108	ES161567710=RRPS	10,005	2,7	5,219	NULL	Baa1	A-
XS1682538183	ES168253818=RRPS	10,005	1,25	3,379	BBB+	Baa1	A-
XS1726152108	ES172615210=RRPS	12,008	1,621	3,272	BBB+	Baa1	A-
XS1815308470	ES181530847=RRPS	10,008	3,01	5,080	NULL	NULL	A-
XS1847692636	ES184769263=RRPS	8,340	1,25	3,403	BBB+	Baa1	A-
XS2455983861	ES245598386=RRPS	10,008	1,375	3,483	BBB+	Baa1	A-
XS2558966953	ES255896695=RRPS	10,008	3,375	3,625	BBB+	Baa1	A-
XS2648498371	ES264849837=RRPS	10,008	3,625	3,654	BBB+	Baa1	A-

BMWG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
CH0465044631	CH46504463=RRPS	8,504	0,75	1,407	A	A2	NULL
DE000A1ZZ028	DE121881233=RRPS	12,008	1	3,473	A	A2	NULL
DE000A3LT423	DE276078763=RRPS	10,008	3,375	3,661	A	A2	NULL
US05565EAH80	05565EAH8=RRPS	10,005	2,8	5,359	A	A2	NULL
US05565EAT29	05565EAT2=RRPS	10,005	3,3	5,419	A	A2	NULL
US05565EAY14	05565EAY1=RRPS	10,008	3,75	5,243	A	A2	NULL
US05565EBE41	05565EBE4=RRPS	10,008	3,95	5,293	A	A2	NULL
US05565EBJ38	05565EBJ3=RRPS	10,008	3,625	5,269	A	A2	NULL
US05565EBL83	05565EBL8=RRPS	10,005	4,15	5,315	A	A2	NULL
US05565EBS37	05565EBS3=RRPS	10,005	2,55	5,326	A	A2	NULL
US05565EBX22	05565EBX2=RRPS	10,005	1,95	5,398	A	A2	NULL
US05565ECB92	05565ECB9=RRPS	10,008	3,7	5,409	A	A2	NULL
US05565ECF07	05565ECF0=RRPS	10,008	5,15	5,389	A	A2	NULL
US05565ECK91	05565ECK9=RRPS	10,005	5,15	5,597	A	A2	NULL
US05600LAC00	05600LAC0=RRPS	10,008	2,85	5,236	A	A2	NULL
USN1453LAC20	DE204171319=RRPS	10,008	2,85	5,236	A	A2	NULL
USU09513GM51	DE138604659=RRPS	10,005	2,8	5,359	A	A2	NULL
USU09513HC60	DE153994048=RRPS	10,005	3,3	5,420	A	A2	NULL
USU09513HK86	DE180746650=RRPS	10,008	3,75	5,243	A	A2	NULL
USU09513HS13	DE186568419=RRPS	10,008	3,95	5,293	A	A2	NULL
USU09513HW25	DE198625779=RRPS	10,008	3,625	5,269	A	A2	NULL
USU09513HY80	DE215708110=RRPS	10,005	4,15	5,315	A	A2	NULL
USU09513JC43	USU09513JC43=RRPS	10,005	2,55	5,326	A	A2	NULL
USU09513JG56	DE237692284=RRPS	10,005	1,95	5,398	A	A2	NULL
USU09513JL42	DE246618844=RRPS	10,008	3,7	5,409	A	A2	NULL
USU09513JR12	USU09513JR12=RRPS	10,008	5,15	5,389	A	A2	NULL
USU09513JX89	USU09513JX89=RRPS	10,005	5,15	5,597	A	A2	NULL
XS1168962063	DE116896206=RRPS	10,008	1	3,819	A	A2	NULL
XS1356742657	DE135674265=RRPS	10,008	4,25	5,449	A	A2	NULL
XS1589881785	DE158988178=RRPS	8,005	0,875	3,648	A	A2	NULL
XS1747444831	DE174744483=RRPS	10,005	1,125	3,333	A	A2	NULL
XS1823246803	DE182324680=RRPS	8,005	1,125	3,348	A	A2	NULL
XS1916029868	DE191602986=RRPS	10,008	3,25	5,257	A	A2	NULL
XS1948611840	DE194861184=RRPS	10,008	1,5	3,377	A	A2	NULL
XS2055728054	DE205572805=RRPS	8,005	0,375	3,313	A	A2	NULL
XS2102357105	DE210235710=RRPS	12,008	0,875	3,367	A	A2	NULL
XS2117437272	DE211743727=RRPS	10,008	2,07	5,718	A	A2	NULL
XS2157517751	DE215751775=RRPS	10,005	3,35	5,071	A	A2	NULL
XS2280845145	DE228084514=RRPS	12,008	0,2	3,406	A	A2	NULL
XS2625968776	DE262596877=RRPS	12,008	3,625	3,638	A	A2	NULL
XS2698773913	DE269877391=RRPS	10,008	4,125	3,577	A	A2	NULL

AD

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1787477543	NL178747754=RRPS	8,005	1,125	3,635	BBB+	Baa1	WD
XS2317288301	NL231728830=RRPS	9,005	0,375	3,520	BBB+	Baa1	NULL

SGEF

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0011430982	FR089580498=RRPS	12,008	3,128	4,765	A-	A3	NULL
FR0013169885	FR140956023=RRPS	10,005	1	3,644	A-	A3	NULL
FR0013201126	FR148730148=RRPS	8,419	0,375	3,840	A-	NULL	NULL
FR0013201134	FR148730202=RRPS	12,008	0,75	3,462	A-	NULL	NULL
FR0013231099	FR154898921=RRPS	10,005	1,25	3,470	A-	A3	NULL
FR0013251170	FR159729222=RRPS	9,005	1,125	3,635	A-	A3	NULL
FR0013286788	FR169813361=RRPS	10,005	1,125	3,477	A-	NULL	NULL
FR0013310455	FR175410210=RRPS	12,008	1,375	3,501	A-	A3	NULL
FR0013346137	FR184764563=RRPS	10,008	1,375	3,421	A-	A3	NULL
FR0013367638	FR0013367638=RRPS	12,008	1,75	3,521	A-	A3	NULL
FR0013369840	FR189002408=RRPS	10,008	3,971	5,542	NULL	NULL	NULL
FR0013397452	FR0013397452=RRPS	10,008	1,625	3,403	A-	A3	A-
FR0013404571	FR0013404571=RRPS	12,008	1,375	3,546	A-	A3	NULL
FR0013409166	FR0013409166=RRPS	8,005	2,25	5,046	A-	A3	A-
FR0013512621	FR0013512621=RRPS	11,005	1	3,515	A-	NULL	NULL
FR0014000PF1	FR0014000PF1=RRPS	8,005	0	3,230	A-	A3	NULL
FR0014004FR9	FR0014004FR9=RRPS	10,510	0,5	3,522	A-	A3	A-
FR001400CH94	FR252784551=RRPS	10,008	2,75	3,580	A-	A3	NULL
FR001400D8K2	FR001400D8K2=RRPS	10,008	3,375	3,540	A-	A3	A-
FR001400F8Z8	FR001400F8Z8=RRPS	10,008	3,25	3,578	A-	A3	NULL
US007866AC04	007866AC0=RRPS	12,197	6,75	6,806	BB	Ba2	NULL
US927320AA96	927320AA9=RRPS	10,008	3,75	5,242	A-	A3	NULL
USF5879XNZ70	FR198217603=RRPS	10,008	3,75	5,242	A-	A3	NULL
USP0100VAB91	FR153999015=RRPS	12,197	6,75	6,749	BB	Ba2	NULL

BAYG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US07274EAL74	07274EAL7=RRPS	10,008	6,5	6,558	BBB	Baa2	BBB
US07274NAL73	07274NAL7=RRPS	10,482	4,375	6,147	BBB	Baa2	BBB
US61166WAW10	61166WAW1=RRPS	10,022	2,85	6,267	BBB	WR	BBB
USU07264AL53	USU07264AL53=RRPS	10,008	6,5	6,558	BBB	Baa2	BBB
USU07265AF50	DE181623888=RRPS	10,482	4,375	6,147	BBB	Baa2	BBB
XS1840618059	DE184061805=RRPS	8,005	1,5	4,143	BBB	Baa2	BBB
XS1840618216	DE184061821=RRPS	11,479	2,125	4,249	BBB	Baa2	BBB
XS2199266268	DE219926626=RRPS	9,510	1,125	4,203	BBB	Baa2	BBB
XS2199266698	DE219926669=RRPS	12,008	1,375	4,405	BBB	Baa2	BBB
XS2281343256	DE228134325=RRPS	8,005	0,375	4,169	BBB	Baa2	BBB
XS2281343413	DE228134341=RRPS	10,501	0,625	4,349	BBB	Baa2	BBB
XS2630111719	DE263011171=RRPS	10,008	4,625	4,432	BBB	Baa2	BBB

		ISP					
ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
IT0004889421	DEA1HE5M=RRPS	12,008	3,375	3,867	NULL	Aa3	NULL
IT0004992787	DEA1ZC7E=RRPS	12,008	3,25	3,693	NULL	Aa3	NULL
IT0005067076	DEA1ZR6U=RRPS	10,260	1,25	3,898	NULL	Aa3	WD
IT0005139966	IT513996=RRPS	10,008	1,85748	0,000	NULL	NR	NULL
IT0005156044	DEA18V15=RRPS	10,008	1,375	3,642	NULL	Aa3	NULL
IT0005214785	IT521478=RRPS	8,932	4,193	4,299	NULL	NULL	NULL
IT0005215147	DEA1851S=RRPS	10,005	0,375	3,618	NULL	Aa3	NULL
IT0005243065	IT524306=RRPS	10,510	4,483	4,484	NULL	NULL	NULL
IT0005243073	IT524307=RRPS	9,014	4,433	4,389	NULL	NULL	NULL
IT0005259988	DEA19JLP=RRPS	10,005	1,125	3,579	NULL	Aa3	NULL
IT0005283491	DEA19P15=RRPS	10,005	1,125	3,546	NULL	Aa3	NULL
IT0005320665	IT532066=RRPS	12,008	1,25	3,451	NULL	Aa3	NULL
IT0005323289	IT532328=RRPS	12,159	4,201991	4,622	NULL	Aa3	NULL
IT0005326068	IT532606=RRPS	10,458	4,193	4,557	NULL	NULL	NULL
IT0005345167	IT534516=RRPS	11,668	4,603	4,817	NULL	NULL	NULL
IT0005345175	IT534517=RRPS	10,921	4,583	4,819	NULL	NULL	NULL
IT0005347973	IT534797=RRPS	10,008	4,90952	4,513	NULL	Aa3	NULL
IT0005352080	IT535208=RRPS	12,255	4,833	4,553	NULL	NULL	NULL
IT0005355679	IT535567=RRPS	12,679	4,963	4,473	NULL	NULL	NULL
IT0005370108	IT537010=RRPS	9,499	4,441965	4,869	NULL	Aa3	NULL
IT0005377020	IT537702=RRPS	9,668	4,523	4,616	NULL	NULL	NULL
IT0005394777	IT539477=RRPS	12,688	4,283	4,552	NULL	NULL	NULL
IT0005398265	IT539826=RRPS	11,715	4,182013	4,549	NULL	Aa3	NULL
IT0005495244	IT549524=RRPS	10,008	7,379	6,316	NULL	NULL	NULL
IT0005508707	IT550870=RRPS	10,008	8,066	6,326	NULL	NULL	NULL
US46115HAW79	46115HAW7=RRPS	10,008	5,71	6,714	BB+	Baa3	BB+
US46115HAW79	000516052=RRPS	10,008	5,71	6,714	BB+	Baa3	BB+
US46115HAX52	46115HAX5=RRPS	10,008	5,71	6,714	BB+	Baa3	BB+
US46115HBA41	46115HBA4=RRPS	10,005	3,875	6,312	BBB	Baa1	BBB
US46115HBB24	46115HBB2=RRPS	10,005	3,875	6,312	BBB	Baa1	BBB
US46115HBB24	000527600=RRPS	10,005	3,875	6,312	BBB	Baa1	BBB
US46115HBD89	46115HBD8=RRPS	10,005	3,875	6,211	BBB	Baa1	BBB
US46115HBG11	46115HBG1=RRPS	10,005	3,875	6,211	BBB	Baa1	BBB
US46115HBL06	46115HBL0=RRPS	10,008	4	6,096	BBB	Baa1	BBB
US46115HBM88	46115HBM8=RRPS	10,008	4	6,096	BBB	Baa1	BBB
XS2185883100	IT218588310=RRPS	10,005	5,148	6,893	BB+	Baa3	BB+
XS2243298069	IT224329806=RRPS	10,005	2,925	4,620	BB+	Baa3	BB+
XS2262806933	IT226280693=RRPS	10,005	2,375	5,087	NULL	NULL	BB+
XS2272247110	IT227224711=RRPS	8,005	4,989	5,315	BBB	Baa1	BBB
XS2294840363	IT229484036=RRPS	10,005	1,4	5,790	NULL	Baa1	NULL
XS2304664597	IT230466459=RRPS	10,005	1,35	4,204	BBB-	Baa3	BBB-
XS2322452553	IT232245255=RRPS	10,005	2,7	8,707	NULL	Baa1	NULL
XS2333388267	IT233338826=RRPS	8,005	4,925	5,575	BBB	Baa1	BBB
XS2345189927	IT234518992=RRPS	8,005	4,913	5,495	BBB	Baa1	BBB
XS2376223751	IT237622375=RRPS	10,005	4,851	5,635	BBB	Baa1	BBB
XS2376223835	IT237622383=RRPS	8,005	4,711	5,495	BBB	Baa1	BBB
XS2376223918	IT237622391=RRPS	9,005	4,711	5,615	BBB	Baa1	BBB
XS2395954998	IT239595499=RRPS	10,005	2,5	8,008	NULL	Baa1	NULL
XS2415405450	IT241540545=RRPS	9,005	4,882	5,595	BBB	Baa1	BBB
XS2444707850	IT244470785=RRPS	8,005	2,8	7,976	NULL	Baa1	NULL
XS2450068619	IT245006861=RRPS	10,008	1,32	2,356	BBB	NULL	NULL
XS2534883363	IT253488336=RRPS	10,008	8,505	7,279	BB+	Baa3	BB+
XS2559133363	IT255913336=RRPS	11,008	8,248	7,029	BBB-	Baa3	BBB-
XS2592658947	IT259265894=RRPS	10,008	5,625	4,363	BBB-	Baa3	BBB-
XS2630420268	IT263042026=RRPS	10,008	6,625	6,248	BBB	Baa1	BBB

US46115HBQ92	46115HBQ9=RRPS	11,008	4,198	7,591	BB+	Baa3	BB+
US46115HBT32	46115HBT3=RRPS	11,008	4,198	7,561	BB+	Baa3	BB+
US46115HCC97	46115HCC9=RRPS	10,008	7,2	6,551	BBB	Baa1	NULL
XS1109765005	IT110976500=RRPS	12,008	3,928	4,219	BB+	Baa3	BB+
XS1202648850	IT120264885=RRPS	10,008	3,53	5,465	BBB	Baa1	BBB
XS1222597905	IT122259790=RRPS	10,008	2,855	4,335	BB+	Baa3	BB+
XS1278720237	IT127872023=RRPS	10,008	2,697	4,131	NULL	Baa1	BBB
XS1338373704	IT133837370=RRPS	12,008	4,25	7,557	BBB	Baa1	BBB
XS1341083555	IT134108355=RRPS	10,008	4,679	4,228	NULL	NULL	NULL
XS1379091546	IT137909154=RRPS	10,005	2,2	4,357	NULL	NR	NULL
XS1394283078	IT139428307=RRPS	10,005	0	4,167	NULL	NR	NULL
XS1429039974	IT142903997=RRPS	10,005	1	1,809	BBB	Baa1	BBB
XS1442116346	IT144211634=RRPS	10,005	2,6	5,858	NULL	NULL	NULL
XS1490787113	IT149078711=RRPS	10,005	3	4,525	NULL	NULL	NULL
XS1534969511	IT153496951=RRPS	8,005	3	4,976	NULL	NR	NULL
XS1551929760	IT155192976=RRPS	10,005	2,7	4,236	NULL	NR	NULL
XS1588019817	IT158801981=RRPS	10,005	3,493	4,656	NULL	NR	NULL
XS1608207566	IT160820756=RRPS	10,005	3,4	4,216	NULL	NR	NULL
XS1608207640	IT160820764=RRPS	8,005	4	6,179	NULL	NR	NULL
XS1685354653	IT168535465=RRPS	8,005	2,5	4,995	NULL	NR	NULL
XS1720194981	IT172019498=RRPS	10,005	2	4,155	NULL	NULL	NULL
XS1720195285	IT172019528=RRPS	8,005	4	6,194	NULL	NR	NULL
XS1751479426	IT175147942=RRPS	10,005	4	7,837	NULL	NR	NULL
XS1783247999	IT178324799=RRPS	10,008	0,862	1,809	BBB	Baa1	BBB
XS1785340172	IT178534017=RRPS	10,008	1,75	3,821	BBB	Baa1	BBB
XS1822866643	IT182286664=RRPS	8,005	5,37471	6,284	NULL	NULL	NULL
XS1822868698	IT182286869=RRPS	10,008	3,4	4,795	NULL	NULL	NULL
XS1822956808	IT182295680=RRPS	9,005	4,825	5,318	BBB	Baa1	BBB
XS1822957103	IT182295710=RRPS	10,008	4,885	5,393	BBB	Baa1	BBB
XS1826197367	IT182619736=RRPS	9,005	4,862	5,206	BBB	Baa1	BBB
XS1826198092	IT182619809=RRPS	10,008	4,932	5,260	BBB	Baa1	BBB
XS1854164024	IT185416402=RRPS	8,005	2,6	4,058	NULL	NR	NULL
XS1937018841	IT193701884=RRPS	8,005	5,445	4,770	NULL	NR	NULL
XS1958656982	IT195865698=RRPS	10,008	2,2	4,022	NULL	NR	NULL
XS2013682609	IT201368260=RRPS	10,008	4,4	4,948	NULL	NR	NULL
XS2022424993	IT202242499=RRPS	10,008	1,75	3,864	BBB	Baa1	BBB
XS2026295126	IT202629512=RRPS	10,008	4,375	5,385	BB+	Baa3	BB+
XS2092626733	IT209262673=RRPS	8,005	5,238	5,215	BBB	Baa1	BBB
XS2102388597	IT210238859=RRPS	10,008	2,5	5,958	BBB	Baa1	BBB
XS2109438387	IT210943838=RRPS	10,008	2,05	4,545	NULL	NR	NULL

BBVA

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
ES0413211840	ES41321184=RRPS	10,008	4,122	4,197	NULL	Aa1	NULL
ES0413211915	DEA189FM=RRPS	10,005	0,875	3,467	NULL	Aa1	NULL
ES0413211923	ES41321192=RRPS	10,005	3,754	4,393	NULL	Aa1	NULL
XS1504052546	ES150405254=RRPS	10,005	7,6	8,918	A	NR	NULL
XS1615673701	ES161567370=RRPS	10,005	1,6	2,744	BBB	Baa2	BBB-
XS1615674261	ES161567426=RRPS	10,005	2,541	4,489	BBB	Baa2	BBB-
XS1712061032	ES171206103=RRPS	10,504	1,72	4,420	BBB+	Baa2	BBB+
XS2104051433	ES210405143=RRPS	10,008	1	4,300	BBB	Baa2	BBB-
XS2206805769	ES220680576=RRPS	11,005	3,104	6,705	BBB	Baa2	BBB-
XS2540780421	ES254078042=RRPS	12,008	4,25	4,502	A	A3	A-

ENEI

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US29278GAA67	29278GAA6=RRPS	10,005	3,625	5,547	BBB	Baa1	BBB+
US29278GAF54	29278GAF5=RRPS	10,507	3,5	5,577	BBB	Baa1	BBB+
US29278GAK40	29278GAK4=RRPS	10,756	4,875	5,467	BBB	Baa1	BBB+
US29278GAP37	29278GAP3=RRPS	10,005	2,25	5,877	BBB	Baa1	BBB+
US29278GAX60	29278GAX6=RRPS	10,008	5	5,877	BBB	Baa1	BBB+
US29278GBA58	29278GBA5=RRPS	10,008	7,5	5,957	BBB	Baa1	BBB+
USN30706VE76	IT236507491=RRPS	10,005	2,25	5,877	BBB	Baa1	BBB+
USN30707AC23	IT162274210=RRPS	10,005	3,625	5,547	BBB	Baa1	BBB+
USN30707AG37	IT166227585=RRPS	10,507	3,5	5,577	BBB	Baa1	BBB+
USN30707AL22	IT188159834=RRPS	10,756	4,875	5,467	BBB	Baa1	BBB+
USN30707AQ19	IT248360135=RRPS	10,008	5	5,877	BBB	Baa1	BBB+
USN30707AT57	IT254678511=RRPS	10,008	7,5	5,957	BBB	Baa1	BBB+
XS0909326919	IT090932691=RRPS	12,008	4,583	4,750	NULL	NULL	BBB+
XS0920704920	IT092070492=RRPS	12,008	4,45	4,609	NULL	NULL	BBB+
XS1176079843	IT117607984=RRPS	10,008	1,966	3,856	BBB	Baa1	BBB+
XS1425966287	IT142596628=RRPS	10,005	1,375	3,732	BBB	Baa1	BBB+
XS1750986744	IT175098674=RRPS	8,671	1,125	3,731	BBB	Baa1	BBB+
XS2353182293	IT235318229=RRPS	9,005	0,5	3,647	BBB	Baa1	BBB+
XS2432293756	IT243229375=RRPS	9,005	0,875	3,709	BBB	Baa1	BBB+
XS2589260723	IT258926072=RRPS	8,005	4	3,824	BBB	Baa1	BBB+
XS2751666699	IT275166669=RRPS	11,008	3,875	4,127	BBB	Baa1	BBB+

ENI

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
BE6305712331	IT184781204=RRPS	8,005	7,20103	6,603	NULL	Baa1	A-
BE6305946731	IT185415716=RRPS	9,005	7,275	6,233	NULL	Baa1	A-
US26874RAE80	26874RAE8=RRPS	10,008	4,75	5,535	A-	Baa1	A-
US26874RAH12	000534429=RRPS	10,008	4,75	5,535	A-	Baa1	A-
US26874RAJ77	26874RAJ7=RRPS	10,008	4,25	5,517	A-	Baa1	A-
US26874RAK41	26874RAK4=RRPS	10,008	4,25	5,517	A-	Baa1	A-
XS0970852348	IT097085234=RRPS	12,008	3,75	3,713	A-	Baa1	A-
XS1180451657	IT118045165=RRPS	11,008	1,5	3,658	A-	Baa1	A-
XS1412711217	IT141271121=RRPS	12,008	1,625	3,652	A-	Baa1	A-
XS1493328477	IT149332847=RRPS	12,008	1,125	3,575	A-	Baa1	A-
XS1551068676	IT155106867=RRPS	10,005	1,5	3,649	A-	Baa1	A-
XS1826622240	IT182662224=RRPS	10,008	4,75	5,535	A-	Baa1	A-
XS1992085867	IT199208586=RRPS	10,008	4,25	5,517	A-	Baa1	A-
XS2107315470	IT210731547=RRPS	10,008	0,625	3,651	A-	Baa1	A-
XS2176785447	IT217678544=RRPS	11,005	2	3,788	A-	Baa1	A-
XS2623956773	IT262395677=RRPS	10,008	4,25	3,964	A-	Baa1	A-
XS2739132897	IT273913289=RRPS	10,008	3,875	3,991	A-	Baa1	A-

DHL

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1388661735	DE138866173=RRPS	10,005	1,25	3,502	NULL	A2	BBB+
XS1734533372	DE173453337=RRPS	10,005	1	3,253	NULL	A2	BBB+
XS1917358621	DE191735862=RRPS	10,008	1,625	3,150	NULL	A2	BBB+
XS2177122624	DE217712262=RRPS	9,005	0,75	2,838	NULL	A2	BBB+
XS2177122897	DE217712289=RRPS	12,008	1	2,981	NULL	A2	BBB+
XS2644423035	DE264442303=RRPS	10,008	3,375	3,433	NULL	A2	BBB+

IFXG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS2194283839	DE219428383=RRPS	9,005	1,625	3,586	BBB+	NULL	NULL
XS2194192527	DE219419252=RRPS	12,008	2	3,617	BBB+	NULL	NULL

CRDI

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
AT000B043559	AT000B043559=RRPS	10,011	1,85	4,421	BBB+	A3	NULL
AT000B043666	AT000B043666=RRPS	10,014	2	4,276	BBB+	A3	WD
AT000B049614	AT000B049614=RRPS	9,008	1	4,127	NULL	NR	NULL
AT000B049655	AT000B049655=RRPS	10,005	0,75	3,678	NULL	NULL	NULL
AT000B049754	AT000B049754=RRPS	10,008	0,625	3,384	NULL	Aaa	NULL
AT000B049788	AT000B049788=RRPS	8,005	0,25	3,474	NULL	Aaa	NULL
AT000B049796	AT000B049796=RRPS	10,422	0,25	3,321	NULL	Aaa	NULL
AT000B049838	AT000B049838=RRPS	10,005	0,15	3,837	NULL	NULL	NULL
DE000HV2AL74	DEHV2AL7=RRPS	10,008	1,625	4,276	BBB	Baa2	NULL
DE000HV2ALG5	DEHV2ALG=RRPS	10,008	0,625	3,928	NULL	Aaa	WD
DE000HV2AND8	DEHV2AND=RRPS	9,340	0,561	3,574	NULL	Aaa	WD
DE000HV2ARC1	DEHV2ARC=RRPS	9,011	0,65	3,552	NULL	Aaa	WD
DE000HV2ARM0	DEHV2ARM=RRPS	10,008	0,875	3,276	NULL	Aaa	WD
DE000HV2AS10	DEHV2AS1=RRPS	12,008	0,25	3,179	NULL	Aaa	WD
DE000HV2ASE5	DEHV2ASE=RRPS	10,008	2,97499	3,975	BBB+	NR	NULL
DE000HV2ASU1	DEHV2ASU=RRPS	8,005	0,01	3,372	NULL	Aaa	WD
DE000HV2ATE3	DEHV2ATE=RRPS	10,005	1	3,552	BBB+	A2	NULL
DE000HV2ATH6	DEHV2ATH=RRPS	10,005	3,469	6,038	NULL	Baa3	NULL
DE000HV2ATM6	DEHV2ATM=RRPS	8,005	0,01	3,290	NULL	Aaa	WD
DE000HV2AYA1	DEHV2AYA=RRPS	10,005	0,01	3,202	NULL	Aaa	WD
DE000HV2AYD5	DEHV2AYD=RRPS	10,005	0,01	3,190	NULL	Aaa	NULL
DE000HV2AYJ2	DEHV2AYJ=RRPS	8,005	0,01	3,260	NULL	Aaa	NULL
DE000HV2AYS3	DEHV2AYS=RRPS	11,008	0,375	3,182	NULL	Aaa	NULL
DE000HV5L1Y5	IT183087053=RRPS	10,008	5,53	6,698	NULL	NR	NULL
DE000HW8N689	DEHW8N68=RRPS	10,005	4,278	3,945	NULL	NULL	NULL
IT0005026023	IT502602=RRPS	12,159	1,65	3,841	AA-	Aa3	AA
IT0005090813	DEA1ZX0K=RRPS	10,151	0,75	3,956	NULL	Aa3	WD
IT0005177032	IT517703=RRPS	10,005	0	3,998	NULL	NULL	NULL
IT0005188534	IT518853=RRPS	9,170	4,428	4,313	NULL	Aa3	WD
IT0005188542	IT518854=RRPS	10,170	4,327435	4,400	NULL	Aa3	WD
IT0005212987	DEA185M5=RRPS	10,167	0,375	3,590	NULL	Aa3	WD
IT0005273187	IT527318=RRPS	8,005	4,404	4,486	NULL	NULL	NULL
IT0005337834	IT533783=RRPS	10,351	4,525278	4,488	NULL	Aa3	NULL
IT0005337867	IT533786=RRPS	9,348	4,495578	4,423	NULL	Aa3	NULL
US904678AB50	904678AB5=RRPS	10,005	4,625	5,847	BBB	Baa1	BBB
US904678AD17	000524975=RRPS	10,005	4,625	5,847	BBB	Baa1	BBB
US904678AZ29	000544689=RRPS	11,008	3,127	6,260	BBB	Baa1	BBB
XS1212397019	IT121239701=RRPS	10,011	8,993	5,432	NULL	NULL	NULL
XS1377799355	IT137779935=RRPS	10,005	5,5715	6,238	NULL	Baa2	BBB+
XS1418864010	IT141886401=RRPS	10,005	1,36	1,697	NULL	NULL	NULL
XS1508450688	IT150845068=RRPS	10,005	2,125	3,754	BBB	Baa1	BBB
XS1596778008	IT159677800=RRPS	10,005	4,625	5,847	BBB	Baa1	BBB
XS2055089457	IT205508945=RRPS	10,008	2	5,338	BB+	Ba1	BB+
XS2104968404	IT210496840=RRPS	10,008	1,8	4,180	BBB-	Baa3	BBB-
XS2289133758	IT228913375=RRPS	10,005	0,85	3,976	BBB	Baa1	BBB
XS2348714713	IT234871471=RRPS	11,008	3,127	6,260	BBB	Baa1	BBB
XS2390849664	IT239084966=RRPS	10,005	2	4,475	NULL	Baa1	NULL
XS2433141947	IT243314194=RRPS	10,005	1,625	3,963	BBB	Baa1	BBB

ADSG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1114159277	DE111415927=RRPS	12,008	2,25	3,422	NULL	NULL	NULL
XS2240505268	DE224050526=RRPS	8,005	0	3,256	A-	A3	NULL

BASF

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
DE000A188WW1	DE151627978=RRPS	10,005	0,75	3,145	A-	A3	A
XS0932079717	DE093207971=RRPS	12,008	3,675	5,227	A-	A3	A
XS1539109790	DE153910979=RRPS	12,008	2,67	5,607	NULL	A3	A
XS1548422846	DE154842284=RRPS	8,167	1,75	5,352	NULL	A3	A
XS1718418103	DE171841810=RRPS	10,005	0,875	3,466	A-	A3	A
XS1823502577	DE182350257=RRPS	12,008	1,5	3,366	A-	A3	A
XS1960277934	DE196027793=RRPS	10,008	0,875	3,954	NULL	A3	A
XS2456247787	DE245624778=RRPS	9,005	1,5	3,673	A-	A3	A
XS2491542457	DE249154245=RRPS	10,008	3,75	3,758	A-	A3	A
XS2595418596	DE259541859=RRPS	9,008	4,25	3,760	A-	A3	A
XS2595418679	DE259541867=RRPS	12,008	4,5	3,939	A-	A3	A

PRTP

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0013165677	FR140775207=RRPS	10,005	1,25	3,865	A-	NULL	NULL
FR0013248721	FR159166198=RRPS	10,005	1,5	3,607	A-	NULL	NULL
FR0013512407	FR0013512407=RRPS	8,005	0,75	3,538	A-	NULL	NULL
FR001400A5M7	FR001400A5M7=RRPS	8,005	1,875	3,603	A-	NULL	NULL
FR001400G412	FR001400G412=RRPS	10,008	3,375	3,790	A-	NULL	NULL
FR001400KHW7	FR001400KHW7=RRPS	8,005	3,625	3,742	A-	NULL	NULL
FR001400KHX5	FR001400KHX5=RRPS	12,008	3,875	3,922	A-	NULL	NULL
FR001400M6N9	FR001400M6N9=RRPS	9,008	5	5,281	A-	NULL	NULL
FR001400OM10	FR001400OM10=RRPS	8,005	3,375	3,769	A-	NULL	NULL

VOWG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US928668AU66	928668AU6=RRPS	10,008	4,75	5,622	BBB+	A3	A-
US928668BX96	928668BX9=RRPS	10,008	5,9	5,941	BBB+	A3	A-
USU9273ACK98	DE191024869=RRPS	10,008	4,75	5,622	BBB+	A3	A-
USU9273ADB80	DE217427789=RRPS	10,005	3,75	5,613	BBB+	A3	A-
USU9273ADT98	USU9273ADT98=RRPS	10,008	5,9	5,941	BBB+	A3	A-
USU9273AED38	USU9273AED38=RRPS	10,005	5,6	5,960	BBB+	A3	A-
XS1586555945	DE158655594=RRPS	10,005	1,875	3,853	BBB+	A3	A-
XS1596735701	DE159673570=RRPS	8,005	2,25	5,481	BBB+	A3	NULL
XS1734548644	DE173454864=RRPS	8,005	1,25	3,864	BBB	A3	NULL
XS1893631769	DE189363176=RRPS	8,005	2,25	3,654	BBB+	A3	NULL
XS1910948089	DE191094808=RRPS	8,005	3,375	5,552	BBB+	A3	A-
XS1910948162	DE191094816=RRPS	9,005	2,625	3,840	BBB+	A3	A-
XS1910948329	DE191094832=RRPS	12,014	3,25	3,855	BBB+	A3	A-
XS1972547696	DE197254769=RRPS	8,507	2,25	3,592	BBB+	A3	NULL
XS2152061904	DE215206190=RRPS	8,005	3,375	3,686	BBB+	A3	NULL
XS2234567233	DE223456723=RRPS	8,003	0,875	3,811	BBB+	A3	A-
XS2234567662	DE223456766=RRPS	12,008	1,25	3,915	BBB+	A3	A-
XS2282095970	DE228209597=RRPS	8,005	0,5	3,904	BBB+	A3	NULL
XS2343822503	DE234382250=RRPS	8,173	0,625	3,870	BBB+	A3	NULL
XS2374594823	DE237459482=RRPS	8,510	0,375	3,920	BBB+	A3	NULL
XS2694874533	DE269487453=RRPS	8,005	4,75	4,032	BBB+	A3	NULL

DANO

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0012432912	FR0012432912=RRPS	10,008	1,125	3,704	BBB+	Baa1	NULL
FR0013216926	FR0013216926=RRPS	12,008	1,208	3,477	BBB+	Baa1	NULL
FR0013517026	FR0013517026=RRPS	9,005	0,395	3,444	BBB+	Baa1	NULL
FR0014006FE2	FR0014006FE2=RRPS	9,005	0,52	3,509	BBB+	Baa1	NULL
FR001400CJG3	FR001400CJG3=RRPS	10,008	3,071	3,568	BBB+	Baa1	NULL
FR001400I3C5	FR001400I3C5=RRPS	8,005	3,47	3,568	BBB+	Baa1	NULL
US23636TAE01	23636TAE0=RRPS	10,005	2,947	5,388	BBB+	Baa1	NULL
USF12033TP59	FR151449794=RRPS	10,005	2,947	5,388	BBB+	Baa1	NULL

SGOB

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1577586321	FR157758632=RRPS	8,005	1	3,775	BBB+	Baa1	WD
XS1627193359	FR162719335=RRPS	10,005	1,375	3,541	BBB+	Baa1	WD
XS1793349926	FR179334992=RRPS	8,005	1,125	3,769	BBB+	Baa1	WD
XS1881593971	FR188159397=RRPS	10,008	1,875	3,523	BBB+	Baa1	WD
XS1962571011	FR196257101=RRPS	12,008	1,875	3,683	BBB+	Baa1	WD
XS2517103334	FR251710333=RRPS	10,008	2,625	3,630	BBB+	Baa1	WD
XS2796659964	FR279665996=RRPS	10,005	3,625	3,742	BBB+	Baa1	NULL

DBAG

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
DE000A1684V3	DEA1684V=RRPS	10,008	1,625	3,508	AA-	NULL	NULL
DE000A2LQJ75	DEA2LQJ7=RRPS	10,008	1,125	3,438	AA-	NULL	NULL
DE000A351ZT4	DE000A351ZT4=RRPS	10,008	3,875	3,561	AA-	NULL	NULL
DE000A3H2465	DE230542716=RRPS	10,005	0,125	3,284	AA-	NULL	NULL
DE000A3MQXZ2	DEA3MQXZ=RRPS	10,008	1,5	3,404	AA-	NULL	NULL

NDAFI

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
CH0284415681	CH28441568=RRPS	10,008	0,55	1,650	AA-	Aa3	AA
DK0002030923	DK0002030923=RRPS	10,227	2	3,675	AAA	WR	NULL
DK0002035138	DK0002035138=RRPS	10,184	2	3,457	AAA	WR	NULL
DK0002037340	DK0002037340=RRPS	11,000	0,5	2,478	AAA	WR	NULL
DK0002037423	DK0002037423=RRPS	10,175	1	3,326	AAA	WR	NULL
DK0002038900	DK0002038900=RRPS	12,151	0,5	2,722	AAA	WR	NULL
DK0002039478	DK0002039478=RRPS	10,340	1	3,247	AAA	WR	NULL
DK0002042266	DK0002042266=RRPS	10,523	1	3,270	AAA	WR	NULL
DK0002044205	DK0002044205=RRPS	11,605	0	2,692	AAA	WR	NULL
DK0002044981	DK0002044981=RRPS	10,526	1	3,160	AAA	WR	NULL
DK0002047737	DK0002047737=RRPS	10,584	1	3,184	AAA	NULL	NULL
DK0002050798	DK0002050798=RRPS	10,186	1,5	0,815	AAA	NULL	NULL
JP575213BF61	JP10090504=RRPS	10,008	0,728	0,793	AA-	Aa3	AA
NO0010678766	NO1067876=RRPS	12,008	3,6	5,019	NR	Aaa	NULL
NO0010740095	NO1074009=RRPS	10,008	2,75	5,072	NULL	Aa3	NULL
NO0010745557	NO1074555=RRPS	10,008	3	5,054	NULL	NULL	NULL
NO0010792831	NO1079283=RRPS	10,090	2,65	4,958	NULL	NULL	NULL
NO0011162190	NO0011162190=RRPS	8,005	2,52	5,279	NULL	A3	NULL
NO0012441643	NO1244164=RRPS	8,005	2,45	4,732	NULL	Aaa	NULL
NO0012989369	NO1298936=RRPS	9,008	5,48	5,348	NULL	A3	NULL
SE0007158597	SE5716NB=RRPS	12,008	1,8375	3,470	NR	Aaa	NULL
SE0009414584	SE5718NB=RRPS	10,005	1,69	3,502	NR	Aaa	NULL
SE0011088772	SE5720NB=RRPS	12,008	1,843	3,500	NR	Aaa	NULL
SE0011762137	SE5724NB=RRPS	12,008	1,8	3,550	NULL	Aaa	NULL
XS1189263400	SE118926340=RRPS	10,008	1,125	3,887	AA-	Aa3	AA
XS1204140971	DEA1ZYKN=RRPS	12,008	0,625	3,398	NULL	Aaa	NULL
XS1234762042	SE123476204=RRPS	10,008	3,26	4,477	NULL	NR	AA
XS1243170880	SE124317088=RRPS	10,011	1,25	4,066	NULL	Aa3	AA
XS1244125958	SE124412595=RRPS	10,008	1,389	4,067	NULL	Aa3	AA
XS1255460724	SE125546072=RRPS	10,008	3,085	5,210	NULL	NULL	NULL
XS1281674041	SE128167404=RRPS	10,008	3,045	5,303	NULL	Aa3	NULL
XS1289769652	SE128976965=RRPS	10,008	4,15	5,356	NULL	Aa3	NULL
XS1306326536	SE130632653=RRPS	10,008	4,2	5,343	NULL	Aa3	NULL
XS1317743547	SE131774354=RRPS	10,008	1,693	4,096	NULL	NULL	AA
XS1323982246	SE132398224=RRPS	10,008	1,65	4,096	NULL	Aa3	NULL
XS1350794720	FI135079472=RRPS	12,008	0,74625	1,028	NULL	NULL	NULL

XS1366355060	SE136635506=RRPS	9,663	4,2	5,352	NULL	NULL	NULL
XS1374462197	SE137446219=RRPS	12,008	1,483	3,723	NULL	Aa3	AA
XS1374498621	SE137449862=RRPS	10,005	0,44	0,641	NULL	Aa3	NULL
XS1374858691	SE137485869=RRPS	10,005	4,05	5,351	NULL	Aa3	NULL
XS1374861489	SE137486148=RRPS	12,008	1,5	3,713	NULL	Aa3	AA
XS1380414844	SE138041484=RRPS	12,008	1,55	3,723	NULL	Aa3	AA
XS1382453576	SE138245357=RRPS	10,005	0,45	0,651	NULL	Aa3	NULL
XS1382610183	SE138261018=RRPS	10,005	1,3025	4,216	NULL	Aa3	AA
XS1421528354	SE142152835=RRPS	12,008	1,3	3,743	NULL	Aa3	AA
XS1428078585	SE142807858=RRPS	10,005	1,07	4,226	NULL	Aa3	AA
XS1477568106	SE147756810=RRPS	10,005	0,611	4,165	NULL	Aa3	NULL
XS1481712542	SE148171254=RRPS	10,005	3,171	5,357	NULL	Aa3	NULL
XS1689535000	SE168953500=RRPS	10,005	1,125	3,302	AA-	Aa3	AA
XS1836079795	FI183607979=RRPS	10,008	3,692	6,139	NULL	NULL	NULL
XS1838096441	FI183809644=RRPS	8,005	1	4,226	NULL	NULL	NULL
XS1839900716	SE183990071=RRPS	10,008	1,387	3,743	NULL	Aa3	NULL
XS1920471023	FI192047102=RRPS	10,008	1,847	3,685	A	NULL	AA-
XS2013525410	DEA2R3NS=RRPS	8,005	0,125	3,372	NULL	Aaa	NULL
XS2019260764	FI201926076=RRPS	10,008	1	4,247	A-	Baa1	A
XS2059753579	FI205975357=RRPS	10,008	2,49	6,139	NULL	NULL	NULL
XS2321526480	FI232152648=RRPS	10,005	0,5	3,505	A	A3	AA-
XS2343459074	FI234345907=RRPS	10,258	0,625	3,948	A-	Baa1	A
XS2343845389	FI234384538=RRPS	10,258	5,031	5,013	A-	Baa1	A
XS2343847674	FI234384767=RRPS	10,258	1,385	6,262	A-	Baa1	A
XS2385122630	FI238512263=RRPS	11,258	1,625	5,773	A-	Baa1	A
XS2497077243	FI249707724=RRPS	12,008	3,873	4,003	NULL	A3	NULL
XS2524740649	FI252474064=RRPS	10,008	2,875	3,691	A	A3	AA-
XS2531924533	FI253192453=RRPS	12,008	3,8	4,053	NULL	A3	NULL
XS2532376949	XS2532376949=RRPS	10,008	2,5	3,183	NULL	Aaa	NULL
XS2784667011	FI278466701=RRPS	10,005	3,625	3,803	A	A3	AA-
XS2802191937	XS2802191937=RRPS	10,005	3	3,196	NULL	Aaa	NULL

PERP

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
FR0013172939	FR0013172939=RRPS	10,008	1,5	3,691	BBB+	Baa1	BBB+
FR0013456431	FR0013456431=RRPS	8,005	0,5	3,451	BBB+	Baa1	BBB+
FR0013456449	FR0013456449=RRPS	12,008	0,875	3,651	BBB+	Baa1	BBB+
FR0013506532	FR0013506532=RRPS	10,011	1,75	3,610	BBB+	Baa1	BBB+
FR0014005SC1	FR0014005SC1=RRPS	8,005	0,125	3,520	BBB+	Baa1	BBB+
FR001400DP44	FR001400DP44=RRPS	10,008	3,75	3,753	BBB+	Baa1	BBB+
FR001400KPC2	FR001400KPC2=RRPS	10,008	3,75	3,749	BBB+	Baa1	BBB+
FR001400PX57	FR001400PX57=RRPS	10,005	3,625	3,806	BBB+	NULL	NULL
US714264AM01	714264AM0=RRPS	10,005	3,25	5,428	BBB+	Baa1	BBB+
USF7061BAQ35	FR138602311=RRPS	10,005	3,25	5,428	BBB+	Baa1	BBB+

WLSN

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
XS1575992596	NL157599259=RRPS	10,005	1,5	3,595	BBB+	NR	NULL
XS2198580271	NL219858027=RRPS	10,005	0,75	3,518	NULL	A3	NULL
XS2592516210	NL259251621=RRPS	8,005	3,75	3,649	BBB+	NR	NULL

NOKIA

ISIN	BONDS 2025-2035	Length	Coupon Rate	YIELD	SP Rating	Moodys Rating	Fitchs Rating
US654902AE56	654902AE5=RRPS	10,005	4,375	5,981	BBB-	Ba1	BBB-
XS2171872570	FI217187257=RRPS	8,005	3,125	3,903	BBB-	Ba1	BBB-
XS2488809612	FI248880961=RRPS	8,501	4,375	4,312	BBB-	Ba1	BBB-